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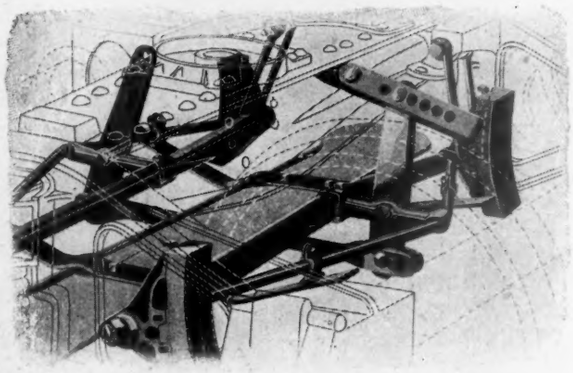

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Railway Age Gazette

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A Big Job for President Wilson

As we go to press it seems to be generally expected that important if not decisive developments affecting the latest demands of the railway train employees for higher wages will result from the conference between the brotherhood leaders and President Wilson to be held on Thursday of this week. Naturally there is considerable anxiety as to whether the President will be able to point the way to an adequate solution of the problem. The Railroads' War Board, while expressing a belief in the principle of arbitration, in view of the situation created by the war, has waived insistence on this method of settlement, and has agreed to place the interests of the railroads unreservedly in the hands of the President. The brotherhood chiefs are still unwilling to submit their demands to arbitration, but have agreed to mediation and that they will take no precipitate action until after hearing from the President. While no one apparently has any doubt that a settlement of some kind will be reached sooner or later, for a strike at this time would be unthinkable, the important question is as to what kind of a settlement can be reached. Manifestly the railroads cannot assume the added burden which this further increase in their payroll would involve without knowing where the money is coming from and without considering the great majority of their employees who do not belong to the brotherhoods. They have, therefore, gone about as far as could possibly be expected of them in placing themselves in the hands of the President, and their action should receive public recognition as being dictated by the most patriotic motives. If the President can devise a plan by which justice can be served without a surrender to the exigencies of the emergency, his action will merit the highest commendation, but the responsibility upon him is a heavy one.

The National Industrial Traffic League

The traffic commissioner of a Board of Trade or other merchants' organization has to spend a large part of his time and energy in getting justice from the railroads in behalf of complaining shippers; but sometimes shippers' grievances are not well founded and this traffic commissioner finds it his duty not to get justice, not to be an advocate, but to dispense justice, much as a judge or an arbitrator would do. He stands between a large body of constituents and a smaller body of railroad officers. If any one thinks that these commissioners are partisans, always driving or fighting the railroads, he should attend a meeting of the National Industrial Traffic League, like that reported in another column of this issue. The high-minded, judicial, fair-dealing attitude of all of the principal participants in the discussions at this convention was constantly in evidence. Some of these men were formerly in railroad service, and they know all the weaknesses or wrongs or wickednesses that may be found in the railroads' practices; but the ex-railroader who, to please his new employer, is unreasonable or vindictive toward the carriers was conspicuous at this meeting by his absence. There was a time, years ago—we will not say how few years ago—when the Interstate Commerce Commission thought more of getting justice—from the railroads—than about placing itself in a strictly impartial attitude. If any member of that body feels in his breast a fear that this old spirit still persists, he could take lessons from some of these shippers' representatives. And there are railway traffic officers who could go to the same source for a number of lessons. Our suggestion of three weeks ago, that railway officers should perfect themselves in the art of presenting their ideas, might be amplified into an admonition also to study more assiduously the art of thinking straight. The most strenuous advocate often makes his strongest point when he makes clear to all observers that he has fairly considered both sides of his question.

Half Truths and Whole Truths

The *Railway Age Gazette* recently referred to the fact that while railway gross earnings are the largest in history, net earnings are declining, and added: "These facts explain clearly why the stocks of some of our best railroads are selling at prices less than when the exchanges closed in July, 1914." The Topeka (Kans.) Capital, referring to this statement, says, "Half-truths always come from organs." The Topeka Capital is the organ of a clever politician, who owns it; who got himself elected governor of Kansas largely by the dissemination through it of half-truths about railroads; and who is now trying to get himself elected United States Senator by similar means. It is therefore an expert on organs and half-truths. The *Railway Age Gazette* is not consciously an or-

gan of the railways, as the Capital implies. But suppose it is. With organs of politicians, such as the Capital, constantly telling half-truths about railways, why shouldn't the *Railway Age Gazette* be allowed to tell the other half, so that the whole may be known? However, in this case the Capital did not tell its half of the truth. It said: "There has been a corresponding shrinkage of all securities on all stock exchanges in the last six weeks." John Skelton Williams, comptroller of the currency, who is a much better expert on this subject than the Capital, issued a statement on November 5, in which he stated that the securities of the railroads "had sustained the heaviest shrinkages" and "had been the leaders in the downward movement of values." It is one of the duties of the comptroller of the currency to determine the basis of value on which national banks may carry securities as investments. When, therefore, the Topeka Capital says that "there has been a corresponding shrinkage of all the securities" and the comptroller of the currency says that railroad securities have sustained the heaviest shrinkage and have been the leaders in the downward movement of values, the public is more likely to accept the view of the comptroller. Why have railroad securities led in the decline? The comptroller of the currency also implies the answer to that question: "If a way cannot be found now to reduce the prices of materials and the cost of labor to a normal basis, and this for the present is hopeless, it seems clear on the facts before us that a revision and modification of the fabric of rates to meet these new conditions has become imperative." The plain implication of this is that railway securities have led the decline because railway expenses have increased so much as to impair the earning capacity of the roads.

FEDERAL INCORPORATION OF ALL RAILROADS

THE address made by S. Davies Warfield, president of the Continental Trust Company of Baltimore, before the Investment Bankers' Association convention, is crowded with material for sensational headlines, but nevertheless it deserves careful study rather than superficial display. After much study and consideration the Railway Executives Advisory Committee adopted the opinion that an act of Congress making compulsory federal incorporation of interstate railroads was one of the necessary steps in bringing order out of the present chaotic condition of railroad regulation. Stripped of its fireworks, Mr. Warfield's contention is that such an act of Congress would probably be unconstitutional and certainly would leave railroad credit in the most dangerous condition until its constitutionality had been passed upon by the Supreme Court; that it would make government ownership far easier of accomplishment and therefore more likely; that by shortening the present long drawn out and complicated process of appeal from inferior courts to higher courts, to still higher courts, and so on to the Supreme Court, the railroads would be depriving themselves of some safeguards which they now have; and finally that such an act would deprive states of their states' rights.

It is natural that Mr. Warfield should regard any step toward more centralized control of railroads as a possible invasion of states' rights. Loyal to the South, it is natural that Mr. Warfield should view political questions from a state's rights point of view. This quite possibly accounts for the brilliant coloring with which the dangers in the proposed act to provide for federal incorporation of railroads are painted. To the majority of those—railroad men, bankers, economists and statesmen—who are now struggling with the problems of railroad regulation, the sacredness of states' rights probably does not bulk as large as it does to Mr. Warfield. Considering the question of federal incorporation, therefore, simply on its merits as an expedient or inexpedient measure for bringing order into the present hit and miss, haphazard and contradictory regulation of railroads by the Interstate Commerce Commission, state commissions and state legislatures, we must study critically the points which Mr. Warfield makes.

As to whether or not the act would be unconstitutional, only the Supreme Court can decide. Eminent lawyers would undoubtedly be of divided opinion. Mr. Warfield does not name the two legal authorities he quotes against federal incorporation; but it is pretty safe to assume that an eminent lawyer holding the views that Samuel Untermyer, for instance, holds might be prepared to argue that such an act would be unconstitutional. On the other hand, the Railway Executives Advisory Committee not only had the advice of its eminent counsel, Mr. Thom, but of many other distinguished lawyers. If, therefore, there is good reason to believe that the act might be held constitutional, it should, if it has merits, be placed before the Supreme Court for its ruling. It is probable that the Supreme Court would pass upon a question such as this very promptly. The interregnum period would therefore be quite short and as a matter of fact there would be very little more uncertainty in railroad security markets with the act passed and awaiting the Supreme Court's decision than there is right now, especially if other provisions of the proposed act cleared up other phases of this many sided question of railroad regulation.

It sounds rather startling to say that by procuring the exactment of a federal incorporation law the railroads would collectively be putting their various heads into a single noose for the convenience of the hangman of government ownership. If anyone will carefully study the acts of Congress and the President since the declaration of war by the United States and will use sound common sense in analyzing these acts as reflecting the attitude of the government and of the people, he will be pretty surely forced to the conclusion that if the people or the government really decide that government ownership is desirable, government ownership we will have in short order. The various little legal difficulties which would stand in the way because of the possession by the railroads of state granted charters would be brushed aside, as so many other apparent obstacles have been brushed aside since the beginning of the war, and the only thing that could really prevent government ownership would be a decision of the Supreme Court holding it unconstitutional. Is it not just a bit fanciful to say that government ownership would be constitutional if it were preceded by an act compelling federal incorporation, when that act itself would have been passed upon by the Supreme Court, but that if no such act had been passed the Supreme Court would hold government ownership unconstitutional?

As to taking away some of the advantages which a railroad now has in being able to raise one legal difficulty after another—to the railroad whose cause is just, such disposal of red tape would be a good clearance of useless rubbish and to the company whose cause is unjust, the deprivation of its present advantages will be for the good of the community as a whole.

There remains, then, the question of states' rights. The country happily is fast getting away from the old states' rights theories. The safety appliance act, the control of car distribution by the Interstate Commerce Commission, the child labor law, the Clayton bill, the income tax act, the valuation act, the white slave act, the national mediation and arbitration act, all vest in the federal government powers which under the old states' rights theories belong to the states exclusively. The Supreme Court has passed on nearly all of the acts such as those mentioned above. With the nation at war it is certainly inopportune to hark back to states' rights theories. Even before the supreme necessity for a compactly united nation to face the enemy had arisen,

the trend of legislation and the decisions of the Supreme Court had demonstrated that states' rights was an obsolete issue. The right of a state is to be protected against other states. Some states must not be permitted to burden all of the others.

THE RAILWAY WAR PROBLEM, AND ITS SOLUTION

IT was a highly significant piece of news which the Railroads' War Board gave to the public last week when it stated that it had handed to Judge Lovett, the government priority director, and Dr. Garfield, the government fuel administrator, a list of 525 commodities which were deemed sufficiently "non-essential" to be denied fuel for their manufacture and transportation for their movement in case need for such action should arise. The Railroads' War Board stated very precisely what its action was, and what it meant, but many of the reports regarding it have been inaccurate. For example, it has been said that the railways have "recommended" or even "demanded" that the articles in question be excluded from transportation.

This is incorrect. The truth is this: The course of developments has forced Judge Lovett and Dr. Garfield, representing the government, and the Railroads' War Board, representing the railways, to a recognition of the fact that it may, and probably will, become impossible for the coal mines to produce enough coal, and the railways to produce enough transportation, to furnish in this time of war fuel and transportation to all the industries to which they are furnished in time of peace. Since the railways have in the offices of their freight classification committees the most complete records in existence of all the commodities now being produced and transported in this country, the Railroads' War Board was asked to have prepared a list of commodities which, under war conditions, might be regarded as "non-essential." This work was assigned to the chairman of the Official (eastern), the Southern and the Western Classification committees, and the list in question was compiled by them. The railways do not even "recommend," much less "demand" that all or any of the producers and shippers of the commodities in question shall be denied fuel or transportation. It was their function to furnish the information for which they were asked, and they have performed that function. Any action which may be taken, based upon this information, will be a war measure; and it is strictly the function of the government to adopt war measures and to assume full responsibility for them. Until the government acts, the railways will continue to try to furnish transportation, and presumably the mine operators will continue to try to furnish fuel, to all classes of industries.

* * *

Meantime, however, the fact that there has been prepared a list of commodities to which it *may* be necessary to deny transportation is one of great moment. Just about eleven years ago James J. Hill wrote to Governor Johnson of Minnesota a famous letter in which he predicted that if the restrictive and destructive policy of regulation of railways then being generally adopted by the national and state governments were persisted in, the development of the facilities of the railways would be so arrested that they would become inadequate to the demands of the nation's commerce. The warning Mr. Hill then voiced has been repeated every day since by persons in close contact with the railway industry. But the policy they have deprecated has been continued and intensified. Meantime, the railway managers year after year, and especially within recent months, have performed prodigies in increasing the efficiency of the existing facilities.

The most striking illustration, perhaps, is afforded by the extent to which they have increased the amount of freight traffic they have handled without any corresponding increase in train service. The Railroads' War Board has pointed out that in the five months from April to August, inclusive, the railways moved as much freight as they did in any entire year prior to 1904. The record of achievement is worth giving in more detail. In 1903—the largest year before 1904—the railways produced 173 billion ton-miles of freight transportation and did it by operating freight trains a total of 526 million miles. In the five months of this year ending with August the Class I roads alone produced 172 billion ton-miles of freight transportation by running freight trains a total of only 276 million miles. Of course, the saving in train-miles and the increased efficiency indicated were accomplished by almost doubling the average load of a freight train.

The railways are today handling twice as much freight as they were when Mr. Hill wrote his letter to Governor Johnson, and doing so with only about the same number of freight trains. In spite, however, of this tremendous increase in the amount of freight being moved, there are serious delays and congestions, and it is admitted that the time may soon arrive when it will become impossible to move some kinds of freight at all. And in spite of the increases of efficiency which have been achieved the railway managers are again before the Interstate Commerce Commission declaring that the net return of the railways has been and still is being so reduced that it has been impracticable, and is rapidly growing impossible, for most of them to make any substantial increases in their facilities, or even to maintain in good operating condition the existing facilities.

* * *

This general situation seems very puzzling to some people and entirely hopeless to others.

The former class can't understand why the railways, with the largest earnings and the most efficient operation ever known, are not making more money than they ever did and are not in a good position to increase their facilities and the amount of traffic they can handle.

The latter class can see no way out of the transportation muddle except some form of direct government assistance to the roads or government ownership.

We shall address ourselves to two phases of this general subject. First, have the railways reached or are they closely approaching the limit of their capacity with their present facilities? Second, if they have reached or are approaching their limit, what measures should be adopted by their managements, or by the government, or by both, to restrict the traffic piled upon them or to enable them to increase their facilities?

We have it upon the highest railway authority, that of the Railroads' War Board itself, that the railways as a whole have not reached the limit of the capacity of their present facilities, or the War Board, in the statement issued by it last week, which is published elsewhere in this issue, expressed this opinion. That opinion can be amply supported by evidence. The railways, as a whole, are still increasing the amount of traffic they are handling; and nobody can compare the statistics of car capacity with those of the tons actually being hauled per loaded car, or the statistics of locomotive tractive power with those of the tons being hauled per train, or the comparative statistics of different roads, showing, as they do, that some roads are handling much more business per mile of track and per mile of line than other roads under comparable conditions, without concluding that it is *possible* to handle a much greater traffic with existing facilities. But what is *possible* and what is *practicable* are commonly two very different things; and this is obviously the case as respects the matter under consideration. Doubtless it would have been *possible* to have handled freight in as large carloads two years ago as it is being

handled in now; but only a fool or an ignoramus would contend that it would have been *practicable*. Now, all the evidence indicates that, *under existing conditions* the railways are approaching the limit of what it is *practicable* for them to do.

The latest monthly statistics available regarding freight business handled are those for August. The number of unfilled orders placed by shippers for freight cars increased in that month, showing that the demand for freight transportation was still increasing. But the railways apparently handled little or no more freight than they did last June. The increase as compared with August, 1916, was only 8.4 per cent, which was the smallest increase over the corresponding month of 1916 recorded since this country entered the war. There are good reasons for believing that when complete statistics for the fall months are available they will show continued increases in the business handled, but nowhere near as large increases as those recorded from April to July. But the number of unfilled orders from shippers for cars had increased on November 1 to 140,000. The conclusion is obvious. The increases in traffic are again occurring faster than the increases in transportation efficiency. Under present conditions that means that the excess of the demand for transportation over the supply of it is growing.

When, on the entrance of the United States into the Great War, the same general condition existed, the managements of the railways, under government sanction, and entirely regardless of the Sherman Anti-trust law, took heroic action. They resolved to operate the railways as a single continental system, and created the Railroads' War Board to carry out the resolution. Marvels have been accomplished as a result of that action. *But experience has demonstrated that the resolution then adopted cannot be fully carried out; and the inability of the railways fully to carry it out is the main reason why the maximum possible amount of transportation cannot be provided with existing facilities.*

Why are the railways unable fully to carry out their resolution? Because the Sherman anti-trust law, the anti-pooling section of the Act to Regulate Commerce, the provision of the Act to Regulate Commerce empowering the shipper to route his freight any way he pleases, and various other existing laws—and also the want of some important laws—thwart at every turn those responsible for the operation of the railways.

* * *

It is agreed by the Interstate Commerce Commission and the Railroads' War Board that one of the main things needed to secure the greatest transportation efficiency under existing conditions is to route freight traffic over the lines of least resistance—in other words over those which are least congested. But how, under existing laws, is this to be accomplished? There are many parts of the country in which it would be beneficial for the Railroads' War Board, in the interest of the highest transportation efficiency, to order all the competing lines to pool their freight traffic, agreeing among themselves on some basis for the division of earnings. The result of the general pooling of freight traffic would be a large increase in the capacity of existing railway facilities. But any such action is entirely out of the question as long as federal laws both absolutely prohibit pooling of either freight traffic or earnings and in addition give every shipper absolute power to route his own freight. In other words, under existing law, the railways can pool and are pooling their equipment, but they cannot pool their trackage and other facilities, which would be far more important.

Again, a large further increase in efficiency could be secured by general increases in minimum carload weights and by reductions of delays to cars while in the hands of shippers. There are many thousands of shippers in the country who have energetically and patriotically responded to the appeals of the railways for heavier loading and prompter loading and unloading of cars as means of winning the war. The railways have so cordially appreciated the way many shippers have co-operated with them that they have desisted from all efforts to get minimum weights increased. But the fact is, that while thousands of shippers are doing their duty in this matter, other thousands are not doing it, and that, largely owing to this condition, many classes of shippers are in danger of being denied transportation entirely. Is it not time for the railways and the regulating authorities to recognize the fact that the only people who will be hit by increased minimum weights are those who are not loading cars as the conditions demand, and that it is better that they should be forced to do their duty rather than that the entire nation, including shippers who are doing their full duty, should suffer? It seems very hard for many people to recognize the fact that this nation is engaged in a terrible war and that *all* of our commercial, industrial and transportation methods must be altered to meet the conditions created by war, or we shall be overwhelmed by a terrible disaster.

There is evident, also, a need for a new dedication of railway officers and employees to the great task to which they have set themselves. The organization of the Railroads' War Board last spring caused for a while a wonderful increase in the energy and the enthusiasm with which all classes of railway men did their work. It was largely this which produced the great results achieved for some months. While railway men may be working just as hard as ever, they are not working with the same enthusiasm and initiative that they were a few months ago. The cynical, cold-blooded and ignorant way in which their efforts and their problems have been regarded and dealt with by most of the regulating authorities, is largely responsible for this. But railway men have a high duty to perform in this war; and they ought to go on performing it with all the enthusiasm, energy and ability of which they are capable. That is the patriotic thing to do, and that in the long run will prove to be the most effective means of winning popular approval and support. There still remains much that railway officers and employees can do to increase the amount of traffic that can be handled if they will but renew, with a new baptism of energy and courage and optimism, their dedication to their country of the best service they have in them.

The most effective thing that could be done at this time to increase the capacity of the railways would be to repeal every law which interferes with their efforts to operate as a single national transportation system. If that were done the Interstate Commerce Commission would have plenty of power, under already existing laws, to control their rates and service in the public interest. If in addition to this, all those who are concerned with the operation of the railways and all those who use their facilities, would do all that they may reasonably be asked to do, to increase their efficiency, there could be secured from existing facilities a very largely augmented amount of service.

* * *

But would that solve the problem now presented to the railway managements and the railway regulating authorities? Unfortunately not. Anybody who will study the actual facts regarding the railway situation instead of forming mere impressions about it soon will see why this is the case. In the first place, there are certain to be still further large increases in traffic during the war. The government has only begun to spend the enormous sums, and to move the enormous quantities of materials, it will use in its war work, and there will be need for greater transportation facilities. In the second place, in order to get and keep on getting the greatest possible service from existing facili-

ties, it will be necessary fully to maintain them, and they are not now being fully maintained, and cannot, on present freight and passenger rates, be fully maintained.

There has been within recent years an enormous increase of operating efficiency and yet, except for short intervals of time, the general tendency of net return has been downward. Why? For the simple reason that wages and prices of materials and equipment have increased faster in proportion than efficiency of operation. If the number of ton-miles of freight transportation produced by a locomotive increases 20 per cent in a year, and other things remain equal, the amount of net money the locomotive will earn for the company that owns it will, obviously, increase. But suppose the cost of a locomotive increases 200 per cent, and the cost of the fuel used in it increases 100 per cent, and the wages of the engineer and fireman that run it increase 25 per cent. The necessary result will be a decrease in the net return earned by the locomotive unless there is an advance of the rates charged for the service it participates in rendering.

Now that is a rough but a perfectly just illustration of what is going on in the railway business and it suggests the only way in which under private ownership the problem of maintaining and increasing the capacity of the railways can be solved. There is no way in which, under private ownership, this problem can be solved except by giving the railways adequate increases of rates. What increases would be adequate? Nobody knows. That will depend entirely upon how large are the increases in traffic and the advances in wages, in the prices of materials and in the cost of capital.

* * *

One way which has been suggested to meet the situation is for the government to loan the railways several hundred million dollars; but that would be a mere palliative. The railways need not hundreds of millions, but billions to invest in new facilities. Mere hundreds of millions will do them no good except in the form of increases in their annual earnings to be used in paying their increasing expenses and the interest and dividends on the new investment of billions in them which should be made.

Some people continue to suggest that the government should buy one or two hundred thousand freight cars and put them into service. But an increase in the number of freight cars without a corresponding increase in the facilities for moving them would only aggravate the present condition. The railways need more locomotives and longer passing tracks and larger terminals much more than they need more freight cars. If they had more locomotives and larger terminals they could get much more service out of the freight cars they now have. Furthermore, as we have pointed out heretofore, if the government should loan them money, whether directly or in the form of an investment in freight cars, the railways would have to pay the interest on it; and how could they pay the interest on money borrowed from the government if they could not pay the interest and dividends on additional capital provided from private investors?

Finally we have the ever recurring suggestion that the only remedy for the situation is government ownership. But there never was a time when that suggestion was so inopportune and dangerous as it is now. For the government to attempt to finance the transfer of the railways from their present owners to itself would at this time cause a financial cataclysm. For it to undertake their management at this time, whether it actually acquired their ownership or left it in private hands and merely undertook their operation, would cause a demoralization in transportation by comparison with which the present conditions would look like the perfection of smooth running. No move the government could make at present would give more aid and comfort to the Kaiser and his allies in crime than an attempt on its part to take over the management of the railways. The government of the United States has before it already enough unsolved problems of unprecedented vastness, complexity and moment without having added to them a problem which in complexity and vastness would surpass any problem in connection with the war with which it is now confronted.

The problem of transportation during the war can be solved by the government by the adoption of the following measures:

1. Relieve the railways of the law-made restrictions which now interfere at every turn with their efforts to operate the existing facilities to their maximum capacity.
2. Give the present managements of the railways unstinted encouragement and support in the efforts they are making to render to the government and the public the largest possible amount of useful transportation service.
3. Recognize the fact that as a war measure it is as necessary to let the railways of this country have all the labor, and all the materials and equipment they need, as it is to furnish materials and equipment to the railways of our European allies.
4. Grant the advances in rates which are necessary to enable our railways to meet their advancing expenses and taxes and also make such increases in their facilities as are requisite to enable them to support the rising flood of traffic which is being poured upon them by the government and the public.

The adoption of a less liberal, comprehensive and constructive program will result in national disaster.

The railways, ever since we entered the war, have been doing their part and doing it under difficulties, discouragements and hardships such as have been encountered by no other industrial or governmental agency. When will the government, in the interest of the industrial and military efficiency of America, remove these difficulties and discouragements and reduce these hardships?

RAILWAY MILEAGE AND THE SCRAP MARKET

THE present high prices of materials and the scarcity of certain materials at any price have brought about conditions which, while unique, are not without certain favorable aspects for the roads. Prominent among these is the high price of scrap which, while lower now than a few months ago, is still much above normal. The obvious and immediate result of this condition has been the collection and sale of all of the scrap accumulated on the property to secure the advantage of these high prices.

This has been carried even further on a number of roads where materials have been made available for sale which would not ordinarily have been released for a year or two. As an instance a number of roads have held in stock considerable quantities of second-hand rail released from main line service. In general this material has been used to relay branch lines according to a fixed program extending over a number of years. The rails and fastenings released on these branch lines are ordinarily too light for further use under the modern heavy equipment and they are, therefore, sold for scrap. One road which had a considerable tonnage of second hand rail in stock pushed its improvement program ahead and relaid practically all of this rail in its branch lines this year, finding that it was able to supply the new fastenings required and then to show a net profit of considerably over $1,000 per mile, after deducting all labor and other charges directly incident to this work. This was made

possible through the high prices now being received for scrap rails and fastenings, the second hand rail having been charged out at the normal price at which it was being carried on the books.

Another development arising out of the condition of the scrap market has been the abandonment and sale of a number of small lines for the scrap materials they contained. Several bankrupt roads have recently secured the consent of the courts to abandon service and sell their properties to parties who purchased them solely for the track materials and equipment. So far as we have learned, this procedure has been followed only where the entire line has been insolvent and where little or no hope was held out for the future. However, the same lack of returns is to be found on many branch lines which form parts of systems, which as a whole are solvent. These branch lines constitute drains on the more prosperous portions of these systems and in many instances are of no more present necessity than the independent lines which are being taken up. It would seem a logical development of present conditions that these roads should endeavor to secure release from the necessity of continuing the operation of these more unremunerative branch lines. Fortunately conditions with respect to materials have not become so acute in this country as in Canada, where a considerable mileage of tracks has been taken up to secure the supplies needed elsewhere in Canada and on the French war front. If conditions should become such that similar action would be necessary in this country there is no question but that a considerable mileage of branch lines could be taken up and the materials diverted to better use, and that after the crisis had passed, the lines would never be rebuilt. Even though present conditions do not require such radical action it would be well to consider the advisability of eliminating waste of this character.

NEW BOOKS

Electric Railway Transportation. By Henry W. Blake, editor, "Electric Railway Journal," and Walter Jackson, business manager, formerly associate editor "Electric Railway Journal." First edition. 470 pages, 120 illustrations, 6½ by 9½ in. Bound in cloth. Published by McGraw-Hill Book Company, 239 West 39th Street, New York.

This is the first book to our knowledge devoted to the transportation methods and practices of electric railways. Most of the accounts of electric railway transportation practices which are mentioned in this book have appeared in the Transactions of the American Electric Railway Transportation and Traffic Association, or in the columns of electric railway press. The efforts of the authors of the present volume have been devoted to making this information more readily available in book form and adding such comment of their own as seemed to them of possible help to the operating man.

The book contains chapters on Organization and Definition; Adjustment of Service to Traffic; Accelerating Traffic Movement Along the Line; Accelerating Traffic Movement on the Car; Car Types in Relation to Traffic; City Timetables—Preliminaries; Interurban Schedules and and Despatching; Fare; Gas-Electric Practices and Devices; Public Relation; Promotion of Passenger Traffic; Traffic Signs for Car, Station and Road—Information for the Public; Competition; Freight and Express Business; Selection and Training of Men; Wages and Wage Agreements; Welfare Work; Discipline of Train Men; Forms of Extra Pay. All of these subjects are taken up in a thorough manner, and it is doubtful if there is anything that an operating man on an electric railway is interested in that is not discussed in this volume. The book is well illustrated, the various problems relating to the subjects just enumerated are thoroughly covered and the practice followed by certain electric railroads, or groups of roads, in regard to a given subject, is given.

Letters to the Editor

REDUCED FREIGHT RATES TO IMPROVE CAR LOADING

ROANOKE, Va.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

I have no doubt many students of conditions created by the entrance of the United States in the war, especially as they affect and are affected by railway transport, have been impressed by the extraordinary results apparent from the campaign for heavier car loading and have wondered into how hard straits ordinary business would have been forced by the sudden absorption of railway facilities for movement of war material, had there not been this waste of car space to fall back on.

At first thought it would seem that the lack of economy in railway operation incident to light loading of cars in the past, and the resultant loss to shippers who pay the freight, is simply chargeable to failure to advance the minimum carload ratings to keep pace with increasing car capacity. I feel, however, that this is not wholly true by any means, although there are doubtless many cases where an increased minimum for carload shipments would not be harmful. There are many shippers and many communities that could not bear an increase in the carload minima for certain commodities, and their inability to move traffic would inevitably result detrimentally to the general public, both producing and purchasing.

Viewed from a broad standpoint, therefore, it would appear that the room for economy in peace times, as well as in time of war, lies with the transport of traffic between communities and between those shippers and consignees that are able to handle capacity carloads or cars loaded above the minimum weights specified for carload ratings. At present the test of patriotism and business necessity on account of car shortage is being applied. In ordinary times there must be other inducement.

Carload freight is carried for lower freight rates than l. c. l. Why not apply the same principle, i. e., "cost of the service," and while continuing the minimum carload rating as a designation of the least weight for which a car can be furnished, to allow a percentage reduction in the freight rate per 100 pounds for each 10,000 pounds loaded in a car beyond the minimum specified. If this were done many shippers would be able to employ more labor necessary to load cars heavier, and many consignees would acquire greater storage facilities for their material. The railways would be relieved of a large economic loss now inequitably distributed among shippers, producers and purchasers; and in figuring this loss the large sums necessary for putting in service freight terminals and power must be considered along with the investment in freight car equipment.

Careful study of this proposition will, I believe, indicate that it would in no case work any injustice or unreasonable discrimination against any part of the public interested in rail transportation. It is a counter-proposition to that of raising the minimum carload ratings, which latter, if done, would strengthen the "middleman," and no thinking person wants to do that.

INVESTIGATION OF QUEENSTOWN RAILWAYS.—The Queenstown Government Railways are the latest to be the subject of an investigation. Messrs. M. Kirwan and Arthur Cooper have been appointed a commission for the purpose of inquiring into and reporting on the administration.—*The Engineer, London.*

Floating Gang of Female Laborers Cleaning Tracks on the Pennsylvania Railroad

The Employment of Women in Railroad Work *

Number Fast Growing in "Housekeeping" Departments and Increase in Technical Departments is Accelerating

By Stuart Bready
Special Agent, Philadelphia, Baltimore & Washington, Wilmington, Del.

TODAY we are all thrilled with the desire to co-operate, to give of our energy, to sacrifice in any patriotic and democratic way that may help us in our purpose to put an end to the Imperial German Government. The women are playing no small part in this purpose, and the working out of the entire situation both here and abroad, during and after the war, will be well worth watching.

What is expected of all of us calls to mind a legend. It is the story of an artist who painted a picture. Other artists had painted pictures which were much more notable than his, but this had a particular red glow upon it, and as the people came and went, they admired the picture, they liked the glow. They said, "I wonder where he got his color from," and one day they asked and he said, "I cannot tell you." And ever the artist went on painting, and he became whiter and whiter, and his picture became redder and redder. One day they came in and found him dead before his easel, and they looked to see if they could discover the secret of this wonderful red color, but they found nothing which they did not already have. But when they took him up to put his grave-clothes upon him they found above his heart the marks of a wound, healed by death, which heals many things. And they buried him and he was soon forgotten, but his picture lived on forever. And still the people said, "I wonder where he got his color from." That is a legend. But it has a lesson for all who would paint a picture which will be enduring. We must put all our energy, our life's blood, into the thing we are doing. In this war, we cannot hope to paint a picture which shall endure for democracy in all ages without such whole-hearted sacrificial help on the part of the women as well as the men. And this they are willingly giving us, more and more.

The position of women before the war is difficult to define. The majority of women did not earn wage or salary, the minority did. The majority were married, the minority were not. The majority were economically dependent, the minority were, through inheritance or wage-earning, independent. The war has led to changes in conditions the ultimate outcome of which cannot definitely be foretold. In the last two years skilled labor has become scarcer and scarcer. Employers have been compelled to put women at work which in ordinary times they would have been thought incapable of performing. Pre-war conditions can never be re-established, and in many cases it would be unwise to desire them. Instead of clinging to the past we ought to plan boldly for better and more permanent ideals, where all shall have the liberty of assuming full responsibility for their own lives. The cry of "equal pay for equal work" raised by women to protect their interests is but an expression of consciousness of ability to render service. It expresses self-respect and a revulsion against under-valuation in the eyes of the stronger sex.

Europe has for a century been accustomed to seeing women as laborers in the fields, in vineyards, as tradespeople, at railroad crossings. It has today no feeling of pity for them. It simply sees results. Undoubtedly there was a time when the laboring man in France watched the woman laborer with jealousy, even as many men in this country are doing today, feeling that success for her meant lower wages and fewer opportunities for him, but today he feels not so. Instead he acknowledges the situation. A Frenchman who had traveled through his country during the recent harvest, observing the well-nurtured crops, said, "Would it not be a good thing to keep the men at war?"

However, we in America cannot hope immediately to succeed in what has taken a century of experimentation elsewhere

* Abstract of a paper read before the New York Railroad Club, November 16, 1917.

to develop. The problem for us is a new one. It is as yet in its infancy. We have still to learn what it may mean. To secure real efficiency the woman must be carefully studied, instructed and disciplined. Special facilities must be provided for her comfort and convenience, and all this requires a certain amount of supervision, time and expense. Processes may often need to be simplified, the result being an unusual subdivision of operations in order to enable several women to perform work heretofore done as a whole by one man.

Of primal and evident importance in the problem, is the fact that woman is fundamentally and constitutionally different from man. She speaks a language of her own, is mentally and physically differently endowed by nature. Recognizing this as an obvious fact, we may divide all railroad work so far as female labor is concerned, into two distinct classes:

First: In the departments which we will term railroad housekeeping, there seem no reasons why the service of women should not be generally acceptable, and of far-reaching importance, provided the traditions of the railroads (and may we say in passing, in some respects the railroads have been smothered in cobwebs of traditions), can be broken through. There is no reason why women should not be responsible for the whole domestic condition of the railroad including the cleaning of cars, selling of tickets, dispensing of information, marking of bulletin boards, performing of minor, semi-important and important clerical duties of all so-called indoor departments. The most notable instance of woman's progress in railroad work in this regard is that of Miss Oden of Davenport, Iowa, who entered the employ of

Unloading Scrap Wood at Thompson Shop, Pennsylvania Railroad

the Western Union as a clerk, became an operator, and is now the Tri-City Passenger Agent of the Burlington in that State.

Second: On the technical, mechanical and working side there is quite another question. The "neat handed Phyllis" is by nature unfitted for all work that may present itself in such departments. It is on the technical side that most study will have to be made. If the parts to be handled are not too heavy, or the exertion of operating various mechanical appliances does not require too much physical strength, a woman can do the work as well as a man, and frequently her suppleness of hand will enable her to perform certain manual operations with greater ease and dexterity. There are, however, in the mechanical departments still other considerations that enter into the question, such as liability to injury, due to the fact that a woman's mind does not grasp the mechanics of machinery easily, and another, the fact of the necessity of long sustained physical exertion, in many instances requiring her to stand all day. In England this question has been dealt with by shortening the hours of work in shops where women are employed.

England has spent much time and effort on the whole problem of women in mechanical labor, and as a matter of interest, I have inserted a partial list of processes, prepared by the Labor Supply Department of the Ministry of Munitions, London, in connection with tool room and precision work, upon which women are successfully employed:

Cutters:—Operating backing-off lathe; turning on turret lathe; all grinding operations; drilling; sand blasting, and annealing.

Dies and Punches:—Operating turret, capstan and centre lathes, pre-

A Pennsylvania Block Signal Operator Delivering Train Orders to a Work Train

cision grinders and drilling machines; turning, boring, facing and reaming; turning in chucking lathe.

Drills:—Parting off, turning on centre lathe, grinding and fluting twist drills.

Fitting and Assembling:—Tool room work and cutters of all kinds, e.g., fitting, facing cutters, milling cutters, filing split bolt for capstan lathe. Fitting and assembling cutter bars.

Gages:—Grinding, milling, fitting and engraving.

Marking-Off:—Marking off all parts not too heavy for women to handle.

Reamers:—Turning, milling, backing off, fluting, polishing and glazing all types of reamers.

Saws:—Milling, hardening, punching, setting, cleaning and packing hack saw blades; hardening and tempering fret saws; sharpening band and circular saws.

Test-pieces:—Operating lathes, bending, shearing, planing, shaping and drilling machines, and precision grinding machines, upon test pieces of all kinds.

Testing:—Applying the bending and shearing test to steel test pieces.

Various Work:—Operating lathes on rough and finished turning; universal plain and slot milling machines; shaping, planing and slotting machines; hardening with muffle furnace and color chart, cutting tools of various kinds; grinding work in lathe, on relieving cutter, and polishing to limit of 0.0005 in.; viewing, gaging and inspecting.

I also submit another list of processes in connection with structural engineering and the manufacture of boilers of all kinds, upon which women are successfully employed in England:

Angle Straightening Machine:—Steel girders, steel rails.

Boiler and Condenser Tubes:—Cutting, rounding, trimming, shaping and slotting; screwing, facing and finishing; bending, heating by gas and hydraulic testing; inserting and packing tubes in condensers and oil coolers.

Buffing and Grinding Machines:—Plates, angle and cover plates for structural steel work.

Drilling:—Drills for all parts of steel structural work from the smallest gusset plates to rolled steel joists up to 30 feet long; vertical drills; radial drills; plates for lattice girder for railroad bridge; steel girders for overhead travelling crane; steel work for run ways; holes in boiler end plates; battery drills; pneumatic drills.

Edge Plate Planing Machine:—Boiler plates, general work up to 24 x 5 feet x ¾ inch; steel plates for railroad bridges, etc.

Operations Upon Ferrules.

Foundry Work.

Horizontal Boring Machines:—Boiler flues.

Hot Bending Machine.

Laboring:—Steel erectors' laborers; general laboring and assisting in engineering and blacksmith shops.
Unloading from Canal Barges, Trucks, Etc.
Oiling Railway Parts.
Cleaning Locomotives.
Plate Laying:—For light gage railways in works and yards.
Milling:—Boiler parts of all kinds.
Punching Machine:—Wrought iron bars; steel girders; junction and tie plates.
Repair Shop, Boiler:—Taking various parts to pieces; marking off their own drilling work; drilling, turning, planing and shaping the parts and re-assembling the job.
Shearing Machines:—Shearing small steel plates and acting as helper.
Surfacing Machine:—Boiler flue flanges.
Various Work:—Driving steel hammers; all engraving work on boilers; assembling bolts and nuts; oxy-acetylene cutting light plates; fire-hardening small steel parts; electro-galvanizing; all painting; maintenance work scraping, brushing and tarring; storekeeping; recording in-coming and outgoing material; assisting in power house; driving crane in boiler shops, and structural engineering shops.

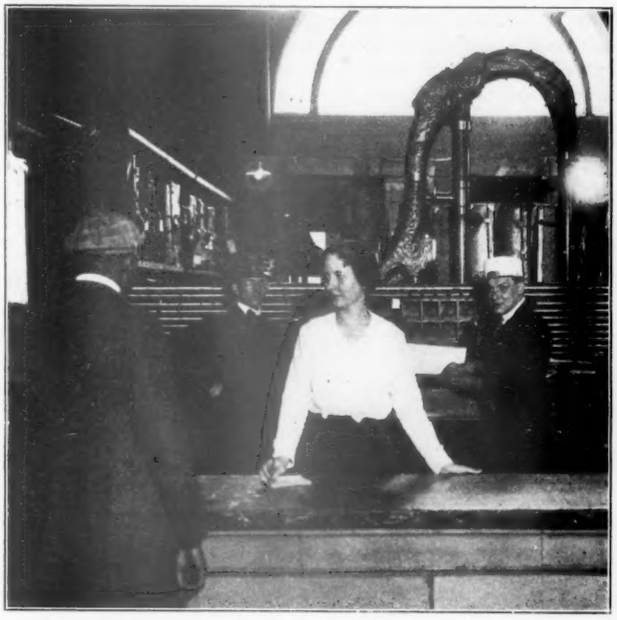
These lists show to what extent England has developed female labor, and while we have not, on the railroads of this country, reached anywhere near this wide diversity of labor, as the war goes on we are finding the number of different occupations increasing, most slowly of course in the technical lines, but undeniably increasing in all lines.

To indicate this gradual increase, I append a table showing by occupations the number of female employees on the lines of the Pennsylvania Railroad, east of Pittsburgh, for five months beginning May 1, 1917.

STATEMENT SHOWING BY OCCUPATIONS AND MONTHS NUMBER OF FEMALE EMPLOYEES ON THE PENNSYLVANIA RAILROAD.

Occupations	Number of Female Employees 1917				
	May 1st	June 1st	July 1st	Aug. 1st	Sept. 1st
Agents	23	23	23	24	24
Asst. manager telegraph school	..	..	..	1	1
Attendants—B. of I.	..	1	3	9	9
Attendants—parcel room	..	..	1	8	12
Attendants—station	4	4	1	4	4
Attendants—store room	1	10	19	39	62
Attendants—tool room	..	..	2	5	6
Batterywomen	..	..	..	..	1
Boilermaker's helper	..	..	..	2	2
Cashiers and assistants	5	6	5	5	5
Chainwomen	..	..	..	..	2
Chaperons	1	1	1	1	1
Cleaners—car	157	181	206	237	252
Cleaners—office	..	..	..	1	1
Cleaners—station	16	16	19	26	30
Clerks and stenographers	448	761	1161	1516	1896
Comptometer operators	10	10	10	10	10
Cooks	12	12	11	15	15
Despatchers—locomotive	..	..	4	4	5
Distributors—Pullman space	..	..	..	2	2
Draughtswomen	..	1	2	1	1
Draughting apprentices	..	..	..	2	2
Elevator operators	..	..	..	..	1
Gang leaders	..	..	..	1	..
Hammer operators	..	..	..	1	1
Janitresses	29	30	30	34	38
Kitchen—dishwashers	18	20	19	17	18
Kitchen—helpers	35	37	35	37	37
Kitchen—pantrywomen	21	21	21	21	21
Laborers	3	7	13	38	115
Machine hands	..	..	2	18	30
Machinists	..	..	..	1	1
Matrons—regulars and extras	83	83	84	78	79
Maids—regulars and assistants	17	17	17	17	16
Messengers and asst. messengers	19	66	134	143	157
Painters	..	..	..	1	4
Seamstresses	3	3	3	3	3
Shop hands	..	..	..	3	13
Signalwomen and as. signalwomen	60	65	77	55	64
Stewardesses	2	2	2	2	2
Teleg. and teleg. block operators	55	57	59	101	104
Telegraph operators—students	..	..	..	29	24
Telep. and telep. block operators	349	382	417	416	456
Telephone operators—P. B. exc.	40	40	41	42	41
Tenders—bridge	9	12	12	12	7
Tenders—switch	..	..	..	1	1
Ticket sellers and clerks	..	2	1	2	2
Tinsmith helpers	..	..	..	..	1
Tracers	..	..	2	2	7
Typists	69	70	78	91	89
Upholsterers	5	5	5	5	5
Warehousewomen	..	..	..	1	5
Watchwomen—crossing	..	..	5	30	45
Total	1494	1945	2525	3114	3730

It will be seen that while the greatest increases are noticeable in those departments which I have earlier designated as pertaining to the housekeeping of the railroad, it is also encouraging to notice a slow but distinct rise in the number of those engaged in the technical lines, such as shop hands, laborers, painters, warehousewomen, etc. It will also be seen from the tabulation that the total for September 1 is more than twice that for May 1. While the figures for October 1 are not yet obtainable, the increase will be approximately 35 per cent in advance of the September 1 figures. For the present certainly, the Pennsylvania is proceeding in the employment of women at a careful and conservative rate, devoting a great deal of study to the problem. Under the direction of the superintendent of telegraph, a school of telegraphy has been established in Philadelphia. It is already well attended, and is producing most excellent results. In all departments, various matters of organization have been given much thought. On certain divisions where any considerable number of women have been employed, matrons are maintained, whose duties require them to look after the general welfare of the women. The general superintendent of the Philadelphia, Baltimore & Washington has issued instructions that a modest and suitable attire must be worn at all times. On the Maryland division the superintendent has issued orders that no women who are under the age of 25 shall be taken on. The reasons for this will doubtless suggest themselves to your own minds. The matter of apparel



Checking Counter, Pittsburgh Station Baggage Room

for those in the shops has, according to the job, assumed the utmost simplicity, and in many cases because of the liability of dresses catching in machinery, overalls have been adopted. A woman on the Baltimore & Ohio has designed a new jumper garment for women who work in the shops and has recommended that they wear the spiral puttees now so much in evidence on the soldiers.

After the war is ended will women continue to seek this kind of employment? Will greater wages be granted them than at present? Again, what will become of the multitude of men with families to support when they return from the war and find their places taken by women, mostly unmarried? The necessities of the present are laying foundations for future problems of a very serious, if not revolutionary character. In Canada, France, England, and also in Germany, the movement is largely on a patriotic basis. It is rapidly assuming the same proportions here. Certain railroads in the United States are encouraging the wives and daughters of employees who have "come across," to fill the places of the departed ones on the plea that any woman who by working releases a man, or equips a man for fighting, does national war service. A million women to take the

place of a million men soon to go to France, are to be card-indexed throughout the country by the National Defense Council Committee. Every woman over 16 years of age will be asked to register, to check from a list of 154 occupations those for which she has had training or those for which she wishes to be trained and to indicate whether she will serve for salary, expenses or as a volunteer.

However, all this is an emergency measure, and the officers of the railroads for the most part, have not and cannot formulate any definite plans for post-bellum days. To a casual onlooker, it would seem that some of the women at least will remain in their new places. Some have already been promoted. By the close of the war others will be still higher in rank. They may have become so important a part of the organization, that it will be difficult to remove them. Their effect on the morale of an office will in many instances be difficult to overlook. In work requiring patience—work which might be called monotonous—they will doubtless have proved more patient than men. They are proving so today. In dealings with the public on occasions where a man would terminate a situation in a wordy war, the female will more often have acted with despatch and diplomacy. She is at least willing, quick witted and as a rule always "on the job." Besides she is more often a "sticker" than a "floater," remaining ordinarily in one job a greater length of time than a man. The argument that women will work for less money and thus lower wages and crowd out the men is untrue. In certain classes of work the average woman today believes herself the equal, if not in many instances the superior in earning capacity. Two years ago in England women were admitted to the Railwaymen's Union and a considerable number have joined.

So far as the railroads are concerned, it is extremely unlikely that they will be slow to see that there are certain fields of labor in which women are by nature peculiarly unfitted to enter, particularly certain technical lines; but it is just as certain that the railroads will be quick to discover their excellent qualities and their possibilities in the lines in which they have, and will continue to have, "made good."

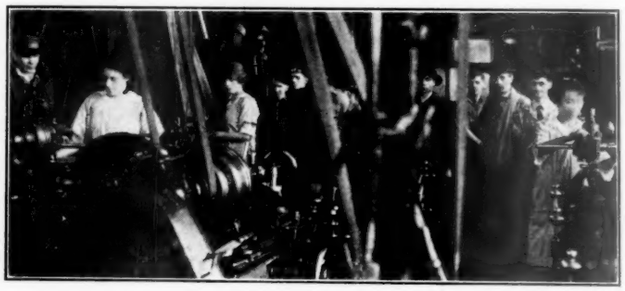
A Woman Attendant in the Pennsylvania Storehouse at Renova, Pa.

Discussion

The value of paying careful attention to the education of women employed in railroad work, for the performance of their specific duties, was referred to several times in the discussion. It was suggested that the benefits obtained from the instructions given women employees might have a far-reaching effect in drawing attention to what might be accomplished if similar methods were extended to all new employees.

The experiences of the Canadian railways and the munitions manufacturers in England were referred to. In Canada, where women are extensively employed in railroad shops, it has been found that the best results have been obtained where matrons are employed to exercise general supervision over the women and to look after their welfare. Special attention has also been given to the provision of adequate rest room facilities, so that the women may have a comfortable and attractive place to congregate by themselves during the noon hour.

In England, with a population of about 42,000,000 people, more than 1,000,000 women are employed in the manufacture of munitions of war alone. By a well developed policy of dilution of skilled labor, extraordinary results in increasing output have been accomplished in the face of a growing shortage of skilled mechanics. Women have been employed to replace men wherever the men can be used to perform more skilled operations. The number of operations requiring high skill have been reduced wherever possible by higher specialization.



Women Employed in the Tool Room at the Wilmington (Del.) Shops of the P. B. & W.

Post-War Railway Problems.—Few after-the-war problems are so fascinating as those connected with the rebuilding of railways destroyed or damaged in accordance with military plans. Detailed figures regarding the necessary reconstruction work are naturally not available, as the bulk of the mileage concerned is in territory occupied by the enemy, but, as a matter of fact, these data would be insufficient by themselves. First of all, while in France and Belgium the problem is mainly one of replacing and repairing systems quite adequate if they be restored to pre-war conditions, in Russia, Poland, Serbia and Roumania it will be necessary not only to repair the ravages of the war, but also to extend networks which before the war were not up to standard of twentieth century requirements. In all these countries, deficiencies in working stock will also require to be made good. Where the mileage of a country's railways is insufficient, the supply of locomotives, passenger and freight cars will have to be increased in proportion to new construction, while in France and Belgium—probably in Serbia and Poland as well—the problem is complicated by the German seizure of working stock, much of which is being operated far from its usual territory. The restoration of this loot, or the payment of indemnities in lieu thereof, will not be the least important question for international jurists to solve when peace terms are being discussed. Other post-war railway problems are the Russian gage question, the linking up of the railways of Greece with those of the rest of Europe, and the best methods of utilizing the Bagdad Railway as a through route to the East. As to the future of the Bagdad line, we may certainly hazard the prediction that it will not remain under German ownership or control.—*Railway Gazette, London.*

Non-Essential Transportation May Be Curtailed

Not an Admission of Failure—Traffic Still Growing—Ways of Still Further Increasing Railroad Efficiency

WASHINGTON, D. C., November 20, 1917.

POINTING out that transportation conditions, unless more vigorously dealt with by all concerned, will grow more acute in the near future, the Railroads' War Board on November 15 issued a statement saying that the time may be almost here when it will be necessary to distinguish in railway transportation between things that are essential and things that are not essential. The statement also made public the fact that the war board has furnished to Judge Lovett, the administrative officer under the provisions of the priority of shipments act, and to Dr. Garfield, the government fuel administrator, at their request, a list compiled by a committee of railway traffic officers showing commodities, the transportation of which is regarded as non-essential under present conditions. One part of this list is made up of about 450 commodities whose transportation, it is believed, could be dispensed with without any serious inconvenience to the public. Another part contains about 75 commodities which it is believed the public could dispense with, but not without inconvenience. How many of these commodities shall be denied transportation, the statement said, is a matter for the priority director and the fuel administrator to determine. If the non-essential commodities are eliminated, the board has no doubt that the railways can transport all commodities required by the government in carrying on the war and by the people for their subsistence and comfort.

The list of commodities regarded as non-essential has not yet been made public and probably will not be until Judge Lovett and Dr. Garfield have given further consideration to the matter. Judge Lovett issued a statement on November 17, apparently designed to set at rest fears that any commodities would be denied transportation for the present, saying:

"While the situation may change, I am not at this time contemplating any further action with respect to transportation of non-essentials. Priority Order No. 2, with regard to open-top cars, went as far as it seemed wise to go in dealing with that problem by restricting the transportation of non-essentials. Conditions, however, will be constantly observed. Whether the coal shortage requires restriction of the coal supply of non-essential industries is a question for the fuel administrator, Dr. Garfield, to determine; and if any priority orders become necessary in the furtherance of his policy in that regard, they will be made only upon his request.

"As to the War Industries Board, apart from my action under the Priority Act with respect to transportation, I may say that the industries of the country would seem to be justified in assuming from the action of the board in the matter of copper and steel prices and its record generally to date, that it is the desire and policy of the board carefully and liberally to conserve the interest and welfare of industries. I feel safe in saying that the board will take no action designed to eliminate any non-essential industry without reasonable notice and an opportunity to be heard."

In making the announcement, the war board took occasion to make to the public a frank statement in explanation of the railway situation as it exists and the means which it believes should be used in dealing with the situation. This statement is in part as follows:

"The transportation situation is becoming the subject of growing public uneasiness and agitation. Those responsible for the operation of the railways realize that transportation conditions, unless more vigorously dealt with by all concerned, will grow more acute. Both the public and the managements of the railways must courageously face the fact that under the trying conditions which will develop this winter it probably will become impossible for the carriers to handle all the traffic which the shipping public can offer. The number of unfilled requisitions for freight cars, after having largely declined between May 1 and Sept. 1, in spite of a vast augmentation of traffic, showed an increase on October 1 and a further increase on November 1. The main reason, of course, why the railways are having such great difficulty in handling all the traffic is that there has been an enormous increase in its volume, and that this still continues. Statistics which have just become available show that in the months of April-August, 1917, inclusive—those being the first five months after the entrance of the United States into the great war—our railways handled 16 per cent more freight traffic than in the same months of 1916, which year broke all records up to that time. The traffic handled in these five months of 1917 was 50 per cent greater than that moved in the same months of 1915; and, in fact, exceeded the total traffic moved in any entire year prior to 1904. When the statistics for September are available they will show that in the six months ending with that month the railways handled more freight traffic than in any entire year prior to 1907.

"Perhaps the most remarkable figures are those regarding the movement of coal. In the six months, May to October, inclusive, there were moved 150,000 more carloads of anthracite than in the same months of 1916, an increase of 18 per cent, and 751,000 more carloads of bituminous and lignite coal than in the same six months of 1916, also an increase of 18 per cent.

"A total of 116,000 carloads of freight have had to be hauled to the National Army and National Guard camps; and up to the time of the latest report over 17,000 carloads of freight had been handled for the shipping board.

"The railways are still moving a total freight traffic surpassing any ever known before, and it should be borne in mind that they are doing this with almost no greater facilities than they had two years ago and under conditions which prevent them from materially increasing their facilities. Another important phase of the situation to which attention should be called is that the railways this year have had to handle the largest passenger business ever known. This has been a serious obstacle to needed reductions in train service. In addition, between August 1 and November 12 they transported 1,200,000 soldiers to training camps, cantonments and points of embarkation. This troop movement involved the use of approximately 2,750 special trains.

"This large passenger traffic and the troop movement have complicated matters and increased the difficulty of moving the freight traffic. Large troop movements are still being made, and the railways are moving to the training camps and cantonments about 75,000 carloads of supplies a month.

"These facts are sufficient to explain the situation. The railways have secured much more service from every track, every car, every locomotive, than ever before, and the fact that the unfilled requisitions for freight cars amounted on November 1 to only 140,000 in spite of the tremendous increase in traffic reflects great credit upon their performance.

"Upon this record of actual achievement the railroads rely on the support of public opinion, despite much of what Commissioner Clark of the Interstate Commerce Commission has characterized as unfair criticism from the people

who are trying to direct attention to alleged faults of the others, in order to avoid having their own shortcomings and evil doings brought into the light.

"But the public naturally is not so much interested in what the railways have done as it is in what they probably will be able to do during the coming months. The course of developments is forcing those responsible for their operation to anticipate that probably they will become unable to provide transportation for all the classes of commodities which they have been moving.

"The situation is similar to that in other industries. The steel manufacturers cannot produce all the steel needed; the coal mines cannot produce all the coal needed, and the farmers have not produced all the wheat needed. Other industries, faced by similar conditions, under the sanction and direction of the government are reducing the amount of fuel and materials furnished to business concerns producing things not essential to carrying on the war."

Then follows the announcement regarding the proposed list of non-essential commodities. The statement adds that "those responsible for the operation of the railways do not wish to be understood as conceding that the transportation lines have reached the limit of their capacity. They are still increasing the amount of traffic they are handling, and with greater exercise of skill and energy by railway officers and employees and increased co-operation from the shipping public and government officials, including the regulation authorities, the freight service rendered can still be largely augmented.

"The Railroads' War Board is issuing to railway officers and employees, and to the public, detailed suggestions in addition to those already made as to methods by which this result can be accomplished, and we have no doubt that these will be received and acted upon as similar suggestions heretofore made have been.

"The difficulties with which the railways were confronted at the beginning of the war were very great. Some of these have been overcome. The increase during the first five months of the war of 16 per cent in freight traffic handled with practically no increase in locomotives or cars, was equivalent to the addition of 5,000 locomotives and 360,000 cars to the number in service.

"The difficulties now confronting the railways are even greater than those they faced at the beginning of the war. They cannot get anywhere near all the men they need. They have lost many of their most efficient officers and employees because of their enlistment in the service of the government and other reasons, and the new men, of course, are not as efficient as those we have lost. It is impossible for the carriers to get the materials and new equipment they need because it is thought by those in authority that the national welfare demands the output of the iron and steel mills and of the railway equipment concerns be devoted to other purposes.

"Great, however, as are the difficulties which the railways are encountering in their efforts to render adequate service, we believe that if the government and the public will be patient and will continue to give the managements of the railways their co-operation, most of these difficulties will be overcome."

Not an Admission of Failure

This statement from the Railroads' War Board is referred to by a writer in the Washington Post as an admission by railroad men "that the present state of affairs has continued long enough and that government control is the most feasible remedy now in sight." In a letter to the editor of the Washington Post in reply to this assertion, Fairfax Harrison, chairman of the Railroads' War Board, challenged it as without foundation. "We are in close conference constantly," he said, "with railroad men, business men and government officers and none of them has ever expressed the opinion that the present state of affairs has continued long enough or that government control of the operation of railways is desirable. A statement exactly opposite would more accurately reflect the views expressed not only by railroad men but by members of the cabinet and other government officers."

The preparation of the list of non-essential commodities at the request of Judge Lovett and Dr. Garfield, Mr. Harrison said, cannot, except by most strained interpretation, be construed as an admission that transportation conditions demand any radical change in the organization and methods now being used in the operation of the roads.

"We are not advocating a 'let well enough alone' policy," he said, "and welcome any and all helpful suggestions. The Railroads' War Board and the managements of the individual railways are putting forth their utmost efforts to meet the transportation demands of the country, and we confidently believe, as we have indicated in previous statements, that under the present arrangement, the railways will be able to render all the transportation of essential articles necessary. If, however, more radical measures become necessary, the Railroads' War Board will not hesitate to recommend such changes. Therefore, the agitation of proposals for radical changes in the existing organization and methods without careful previous consideration is ill-timed and dangerous. Their adoption would result in a demoralization in the transportation field, greatly reduce the efficiency of the railways and be disastrous to the commercial and military interests of the country."

Suggestions for Increasing the Efficiency of the Railroads

The detailed suggestions referred to in the statement regarding additional methods for increasing the efficiency of the railroads are contained in Bulletin No. 42 issued by the war board on November 15, addressed to all railroads, and are as follows:

"We are approaching the winter with apprehensions of possible congestion on our railroads, notwithstanding all that has been accomplished by the hearty co-operation with us of government agencies, shippers and the general public, in increasing their efficient operation. Our reports show that in the second quarter of 1917 each locomotive handled 16.1 per cent and each freight car 15.3 per cent more revenue ton miles than in the corresponding period in 1916, equivalent to the addition of 4,985 locomotives and 361,000 freight cars to the equipment of the latter year. While the committee gratefully accords credit for this showing to the co-operative efforts of the carriers and the public, it considers it necessary to direct attention to the extraordinary *additional* amount of transportation that the carriers will be called on to supply this winter, through the operation of conditions that have developed since our entry into war, the pressure from which is constantly and rapidly increasing in intensity.

"The commandeering of ships engaged in Atlantic and Pacific coastwise trade, and of seagoing tugs plying between Newport News and New England points, throws on the railroads the burden of transporting much of the New England coal and cotton supply that formerly moved by water. Many more troops, in addition to 1,200,000 already moved, will have to be transported, and at least 2,500 carloads of supplies for their use must be handled DAILY this winter. Proper response to these demands, and to the almost unlimited calls for fuel from all parts of our country, will require unremitting effort.

"It is evident, therefore, that however heartily the public has already responded to our requests for co-operation, additional and most strenuous endeavor must be made, both by us and by them, to overcome the stress of winter weather,

overworked plant, and depletion of forces through calls to the flag and resignations to accept employment in shipyards and munitions factories.

"Repeating and emphasizing the suggestions in our Bulletin No. 12 of May 4, 1917, to strive for increased efficiency, the following additional ones are offered:

"1. Study thoroughly all priority and other governmental orders issued to promote movement of traffic and use of equipment, comply cheerfully and promptly therewith, and

I LEAVE IT TO YOUR RAILROAD TRAINING— WHICH OF US SHOULD BACK UP AND TAKE THE SIDING?
PATRIOTIC SPECIAL
WE SCHEDULE PATRIOTISM MUST HAVE RIGHT OF WAY OVER EVERYTHING TO WIN THE WAR
LABOR
RAILWAY UNIONS

St. Louis Globe-Democrat

There Can Be but One Answer

adopt the same attitude towards the orders of the Commission on Car Service.

"2. Redouble effort to:

(*a*) Increase the loads per car of bulk grain and other commodities, much of which still moves in light loads.

(*b*) Expedite car movements through yards and terminals.

(c) Check up and enforce demurrage rules rigidly.

(*d*) Check up and eliminate cross-haul of commodities.

"3. Unload company material much more promptly.

"4. Increase lading in L. C. L. merchandise cars, by establishing 'sailing days,' a practice used with great success by some of our constituents.

"5. Increase fuel economy by closer inspection of firing practice, and by extending the use of superheated steam, feed-water heaters, etc.

"6. Review switching service at terminals, and prescribe special movements, so as to cut out all unnecessary detention of cars.

"7. Wherever transportation can be conserved, avoid the use of unreasonably circuitous routes, carefully avoiding, however, overloading direct routes.

"8. Lengthen passenger and fast freight train schedules during the winter, to promote punctuality, and avoid demoralization of traffic that invariably follows failure of regular trains to make their schedules.

"On single track, as most of our lines are, the number of meeting points and opportunities for collision decrease much more rapidly than the number of trains. For instance, 10 trains each way daily involve 100 possible meets, with the delays incident thereto, and offer equal opportunity for head-on collisions; by reducing the number of trains to 7, or 30 per cent, the possible meets, delays, and collisions fall to 49, or 51 per cent.

"The LOSS of equipment service resulting from a reduction of speed from 20 to 15 miles per hour, is suffered on the *time it is moving* only, and as this is but a small percentage of the total time consumed on a trip, the *actual* loss is very small, and is much more than offset by the GAIN of 15 per cent in tractive power of a typical freight locomotive at the lower speed.

"9. Wherever possible, arrange for common use of terminals and facilities, to tide over threatening emergencies.

"10. Curtail reconsignment privileges in every possible way.

"11. Encourage the use of motor trucks and co-operation with trolley lines for handling short-haul freight.

"12. Enlist the services of water transportation lines in all reasonable and practicable ways.

"13. Start a systematic, vigorous campaign to provide

YOU CAN'T DICTATE TO ME—IT'S MY ROAD AND I'M GOING TO HAVE IT RUN THE WAY I WANT IT RUN. Y'UNDERSTAND.
IS THAT SO? WELL LOOKEY HERE—YOU COME ACROSS WITH A RAISE OR I'LL TIE UP YER OLD ROAD TIGHTER'N ELL DYE GIT THAT.
HOW TO RUN A RAILROAD
Morris

From the Evening Mail, New York

Uncle Sam—"If Those Fellows Don't Quit Their Quarreling, by Gum, I'll Run the Railroads Myself"

universal interline waybilling, a study of the operation of which on one large system convinces us will result not only in a large money saving, but in saving 12 to 18 hours' time on cars and the continuous services of one switch engine, handling setbacks account 'no billing,' at each representative terminal.

"14. Keep seaports and regional gateways free of congestion, by prompt use of embargoes, which should be established *immediately on signs of trouble,* without waiting, as has frequently been done, until congestion has actually oc-

curred. An ounce of prevention is worth not one but many pounds of cure.

"The railroads generally are very short-handed, some of our constituents reporting a net shortage of 12½ per cent in the number and a much larger percentage of loss in the efficiency of its employees, because of the necessity of filling vacancies with unskilled and inexperienced men. We recognize that everyone is doing his best, in trying conditions, to help his country win the war, but if insuperable difficulties should arise to prevent us from giving the public as good service as we desire, we ask every railroad executive to make it clear why we failed, and to request the public to continue to exercise the patience and tolerance that they have heretofore shown."

STATISTICS SHOW INCREASED EFFICIENCY

The steadily increasing efficiency of freight operation is again reflected in the monthly report compiled for the Railroads' War Board by the Bureau of Railway Economics of statistics showing the results of freight operation during the month of August. The returns included in this statement represent about 97 per cent of the operated mileage of roads of Class 1, which during the month show an increase of 8.4 per cent in revenue ton miles transported with an increase of only 1.7 per cent in the number of freight locomotives and 2.5 per cent in the number of freight cars in service. The details are shown in the table. A statement has also been compiled showing the comparative results of freight operation for the five months, April to August, 1917, as compared with the same period of the previous year for certain selected features of the report. This shows an increase in revenue ton miles of 23,904,579,696, or 16.2 per cent, while the average number of freight locomotives in service increased only 1.4 per cent and the average number of freight cars in service increased 2.2 per cent. The average number of tons per train increased from 625 to 675, or 8 per cent. The tons per loaded car from 24.8 to 27, or 8.9 per cent, while the average mileage per locomotive per day increased from 65.3 to 68.7, or 5.2 per cent, and the average mileage per car per day increased from 27.3 to 28.1, or 2.9 per cent. The percentage of freight locomotives in shop or awaiting shop was reduced from 15.6 per cent to 14.1 per cent, and that of freight cars in shop or awaiting shop from 6.4 to 5.8 per cent. The revenue ton miles per locomotive increased 14.5 per cent in the five months operated, and the revenue ton miles per freight car increased 13.7 per cent. These statistics are for 225,349 miles of road.

MONTHLY REPORT OF FREIGHT OPERATION OF STEAM RAILWAYS, AUGUST, 1917

Item	United States 1917	United States 1916	Increase or decrease Amount	Increase or decrease Per Cent	Eastern District 1917	Eastern District 1916	Increase or decrease Amount	Increase or decrease Per Cent
Freight train-miles	54,235,124	53,018,200	1,216,924	2.3	21,720,903	21,636,481	84,422	0.4
Loaded freight car-miles	1,333,670,890	1,355,084,353	d 21,413,463	d 1.6	568,802,008	587,566,299	d 18,764,291	d 3.2
Empty freight car-miles	606,326,158	564,492,813	41,833,345	7.4	263,982,795	263,475,405	507,390	0.2
Total freight car-miles—loaded and empty	1,939,997,048	1,919,577,166	20,419,882	1.1	832,784,803	851,041,704	d 18,256,901	d 2.2
Freight locomotive-miles	65,384,034	63,668,168	1,715,866	2.7	29,189,026	28,804,593	384,433	1.3
Revenue ton-miles	34,172,924,079	31,531,700,934	2,641,223,145	8.4	16,168,897,766	15,118,995,684	1,049,902,082	6.9
Non-revenue ton-miles	3,029,508,389	2,700,060,378	329,448,011	12.2	975,314,679	809,736,749	165,577,930	20.4
Average number of freight locomotives in service	30,371	29,855	516	1.7	12,451	12,282	169	1.4
Average number of freight locomotives in shop or awaiting shop	4,293	4,587	d 294	d 6.4	1,843	1,986	d 143	d 7.2
Average number of freight cars in service	2,307,031	2,251,182	55,849	2.5	1,180,955	1,152,775	28,180	2.4
Average number of freight cars in shop or awaiting shop	139,147	150,281	d 11,134	d 7.4	75,330	79,690	d 4,360	d 5.5
Home	105,077	122,062	d 16,985	d 13.9	55,984	64,776	d 8,792	d 13.6
Foreign	34,070	28,219	5,851	20.7	19,346	14,914	4,432	29.7
Tons per train	686	646	40	6.2	789	736	53	7.2
Tons per loaded car	27.9	25.3	2.6	10.3	30.1	27.1	3.0	11.1
Average miles per locomotive per day	69.4	68.8	0.6	0.9	75.6	75.7	d 0.1	d 0.1
Average miles per car per day	27.1	27.5	d 0.4	d 1.5	22.7	23.8	d 1.1	d 4.6
Per cent of empty car-miles	31.3	29.4	1.9	6.5	31.7	31.0	0.7	2.3
Per cent of freight locomotives in shop or awaiting shop	14.1	15.4	d 1.3	d 8.5	14.8	16.2	d 1.4	d 8.7
Per cent of freight cars in shop or awaiting shop	6.0	6.7	d 0.7	d 10.5	6.4	6.9	d 0.5	d 7.2
Revenue ton-miles:								
Per locomotive	1,125,183	1,056,161	69,022	6.5	1,298,602	1,230,988	67,614	5.5
Per freight car	14,813	14,007	806	5.8	13,691	13,115	576	4.4
Average miles operated—single track	224,251.46	224,503.45	d 251.99	d 0.1	55,901.24	56,140.41	d 239.17	d 0.4

Item	Southern District 1917	Southern District 1916	Increase or decrease Amount	Increase or decrease Per Cent	Western District 1917	Western District 1916	Increase or decrease Amount	Increase or decrease Per Cent
Freight train-miles	9,943,204	9,074,714	868,490	9.6	22,571,017	22,307,005	264,012	1.2
Loaded freight car-miles	229,054,388	215,709,570	13,344,818	6.2	535,814,494	551,808,484	d 15,993,990	d 2.9
Empty freight car-miles	113,438,998	91,961,612	21,477,386	23.4	228,904,365	209,055,796	19,848,569	9.5
Total freight car-miles—loaded and empty	342,493,386	307,671,182	34,822,204	11.3	764,718,859	760,864,280	3,854,579	0.5
Freight locomotive-miles	11,054,928	10,094,245	960,683	9.5	25,140,080	24,769,330	370,750	1.5
Revenue ton-miles	6,003,243,039	5,227,001,875	776,241,164	14.9	12,000,783,274	11,185,703,375	815,079,899	7.3
Non-revenue ton-miles	568,601,920	520,285,018	48,316,902	9.3	1,485,591,790	1,370,038,611	115,553,179	8.4
Average number of freight locomotives in service	5,433	5,329	104	2.0	12,487	12,244	243	2.0
Average number of freight locomotives in shop or awaiting shop	715	690	25	3.6	1,735	1,911	d 176	d 9.2
Average number of freight cars in service	315,122	310,092	5,030	1.6	810,954	788,315	22,639	2.9
Average number of freight cars in shop or awaiting shop	16,299	20,920	d 4,621	d 22.1	47,518	49,671	d 2,153	d 4.3
Home	12,990	17,996	d 5,006	d 27.8	36,103	39,290	d 3,187	d 8.1
Foreign	3,309	2,924	385	13.2	11,415	10,381	1,034	10.0
Tons per train	661	633	28	4.4	598	563	35	6.2
Tons per loaded car	28.7	26.6	2.1	7.9	25.2	22.8	2.4	10.5
Average miles per locomotive per day	65.6	61.1	4.5	7.4	64.9	65.3	d 0.4	d 0.6
Average miles per car per day	35.1	32.0	3.1	9.7	30.4	31.1	d 0.7	d 2.3
Per cent of empty car-miles	33.1	29.9	3.2	10.7	29.9	27.5	2.4	8.7
Per cent of freight locomotives in shop or awaiting shop	13.2	12.9	0.3	2.3	13.9	15.6	d 1.7	d 10.9
Per cent of freight cars in shop or awaiting shop	5.2	6.7	d 1.5	d 22.4	5.9	6.3	d 0.4	d 6.4
Revenue ton-miles:								
Per locomotive	1,104,959	980,860	124,099	12.7	961,062	913,566	47,496	5.2
Per freight car	19,051	16,856	2,195	13.0	14,798	14,189	609	4.3
Average miles operated—single track	41,867.16	42,059.79	d 192.63	d 0.5	126,501.06	126,303.25	197.81	0.2

d Decrease.

National Industrial Traffic League

Constructive Discussions by Public-Spirited Commissioners of Demurrage, Bills of Lading, Express Rates

THE National Industrial Traffic League held its annual meeting at the Waldorf-Astoria Hotel, New York City, on November 15 and 16 with about 150 members present. G. M. Freer, manager of the Traffic Department of the Cincinnati Chamber of Commerce and president of the League, presided and, in the absence of Secretary O. F. Bell, that position was filled by E. F. Lacy, of Chicago, assistant secretary.

The first business was the election of officers for the ensuing year and the present incumbents were re-elected, namely, Messrs. Freer, Bell (traffic manager of the Crane Company, Chicago), Lacy, and W. H. Chandler, manager of the Transportation Department of the Boston (Mass.) Chamber of Commerce, vice-president. F. B. Montgomery was made chairman of the board of directors and H. C. Barlow chairman of the Executive Committee. The report of the secretary-treasurer showed $4,016 on hand, of which $3,000 is of the nature of an emergency fund, drawing interest. The membership dues were increased last year for the purpose of providing this fund; and the amount of dues collected, according to the report, was nearly $12,000.

The Executive Committee presented a report recounting its activities since the last meeting (at Buffalo). In connection with the new rules of the Interstate Commerce Commission regarding the filing by railroads of applications for leave to issue new tariffs, the League has called to the commission's attention the importance of requiring the railroads, without exception, to confer, in advance, with representatives of the shipping public; and the commission has been asked to prescribe a form of application which shall show how and to what extent this duty of conferring with shippers has been carried out. The League also asked that all such applications for authority to issue tariffs should be filed at every place at which the railroads are required to maintain complete public files of tariffs. It is understood that the Commission proposes to issue a daily bulletin giving information about these applications.

In this discussion of the question of tariffs there was voiced a demand that every tariff should show, in summary form, on the first or second page, what changes have been made, especially advances on rates in former tariffs; but it was the consensus of opinion that in many cases such a rule could not reasonably be complied with.

Demurrage

The Committee on Car Demurrage and Storage, F. B. Montgomery, chairman, presented an interpretation of demurrage rule No. 2, section A (allowing 48 hours' free time for unloading), as applied to a case where there are two minimum carload shipments in one car consigned to different consignees in the same town. It was held that each consignee should have 48 hours, free of interference, in which to unload his freight. The meeting adopted this interpretation.

The committee reported its interpretation of demurrage rule No. 2, section B, paragraph 3. The committee recommends that this rule (allowing 24 hours' free time) should apply to all cases where a car is delayed because a connection rightfully demands prepayment or the surrender of the bill of lading; and this the convention approved.

The committee made a number of suggestions in regard to changes in storage rules No. 1 and No. 5, and these were approved by the meeting.

The committee has had considerable discussion of demurrage rule 5, section A, covering constructive placement; and reported that further conferences were to be had with the American Railway Association's Committee on Relations. In regard to section B of rule 6, imposing a demurrage charge in case a car is placed for a shipper and he does not use it, the American Railway Association proposes to add to the demurrage charge the regular switching rate for each move. The committee has protested against this new rule, because of this switching charge addition and for other reasons. Shippers who have been consulted believe that no switching charge should be made, for any movement, except according to rates shown in regular published freight tariffs. In the discussion on the report it was pointed out that this rule, allowing a car thus unused to stand 48 hours, was liable to be wasteful; it does not cure the evil which is aimed at; it will not prevent interplant use of cars. The action of the committee in protesting against the rule was approved.

Reporting on the agitation by some railroad men to abrogate the average agreement and the complaints of some consignees that it ought to be more liberally applied to cars which are held en route to complete loading (and which are allowed one day for the purpose), the committee finds that the American Railway Association has disapproved the agitation for abolition of the agreement at the present time and has so notified its local committees; and no action is recommended.

Considering the question of the desirability or undesirability of demurrage bureaus (like that now in operation at Boston), the committee found much difference of opinion; and had done nothing except to appoint a subcommittee of three to discuss the matter, if found desirable, with the Interstate Commerce Commission. This action was approved by the meeting.

Freight Classification

The report of the Classification Committee brought out a long discussion on the desirability of asking the railroads for more liberal rules to permit the combining of different commodities in a single carload at a carload rate. In some cases this practice has increased loading efficiency and in others, it is claimed, has not. Such clauses in the classification are abused by the mixing of commodities that have no legitimate relation to each other.

On the subject of uniform classification the committee reported that in the next revision of the Western Classification about 87 per cent of the descriptions will be in conformity with the descriptions adopted by the Uniform Classification Committee. This next revision, which will be No. 55, will contain 7,921 items, an increase of about 600 over the last one.

The railroads contemplate putting into the next Western Classification a rule stipulating that an article shall not be considered as knocked down unless it has been taken apart so as to reduce materially the space occupied. This has been objected to as not being sufficiently explicit, and the committee has been asked to recommend that the tariff shall set forth, in each case, just what must be done to an article to entitle it to the K. D. rating. The point was brought out that every shipper knows what is reasonable in this matter, and that all that is needed is competent and impartial inspectors on the part of the railroads; but the meeting finally

voted to instruct the committee to endeavor to secure explicit definitions, in the classifications, for each item.

In the revision of the Official Classification there is a proposal to take out carload ratings on about 75 commodities, and shippers objecting to this have already gone to the Interstate Commerce Commission with their complaints. These elisions are proposed on the ground that the commodities are never shipped in carloads; but the discussion brought out that some shippers want certain of these rates only to use them under rule 10, which permits mixed carloads.

Freight Claims

The committee on this subject proposed the addition of a line in the standard bill of lading for the street address of the consignee; and the meeting ordered the request to be laid before the Interstate Commerce Commission. The committee reported a need for a manual for the use of shipping clerks covering the marking, packing and handling of freight, but no action was taken. A strong argument was made for the enforcement of the rule requiring the marking of every package and the erasure of old marks. There is a great waste of time and energy in tracing for lost packages, which work would be saved if everything were properly marked. One member urged that the Car Service Commission be asked to order the rejection of shipments not properly marked.

Mention of the subject of tracing brought out a long discussion on the great amount of useless tracing and the difficulty in getting proper attention to tracers which really are necessary. One concern, shipping 300 cars a month, had boasted of sending out tracers after every shipment, within a day or two, and named the roads which cheerfully attended to such tracers, virtually furnishing to the shipper progress reports for every shipment. This abuse was condemned as impairing the railroads' ability to properly attend to legitimate tracing. This practice of indulging shippers in the habit of asking to have shipments traced before they have had time to reach destination was strongly condemned by a number of speakers; and one Chamber-of-Commerce commissioner moved to approve the use, by railroads, of a printed circular, declining to send tracers prematurely, this circular to be pinned to the application and to constitute the only reply to such applications. One New England road was cited as receiving 1,400 requests a week for these illegitimate tracers.

The speakers made a clear distinction between ordinary tracing and requests for special attention to shipments which must be expedited; and one of them said that if suitable junction records were kept, so that inquiries could be promptly answered, the matter of tracing would be greatly simplified. It was pointed out, however, that such records are not kept for l. c. l. shipments and probably could not be reasonably required.

Bills of Lading

The committee on this subject made a brief report on a proposed blank combining a bill of lading with a waybill, but after a very brief discussion the subject was laid on the table.

Certain railroads in the southwest have proposed to make a charge for issuing a bill of lading for a shipment to be billed "to order, notify," but the committee, after conferring with prominent railroad officers, concluded that there was no likelihood that such a charge would be actually put in effect. The motive for imposing a charge is to get rid of unnecessary application for such receipts.

There was a long discussion in regard to varied and inconsistent practices on the part of the railroads in determining the value of freight which has been lost or damaged. The present standard form of bill of lading stipulates that payment shall be based on the value of the freight at the time and place of shipment; but certain railroads try to reduce their payments by insisting on the values named in the invoice, though the bill of lading now has no provision for the use of the invoice figures.

The Interstate Commerce Commission is now receiving two or three hundred complaints a month concerning shippers' difficulties in getting satisfactory treatment from the railroads in the matter of valuation of lost or damaged property. Many of these complaints have to do with what are called drop shipments; shipments where there are three parties concerned, the shipper, the jobber who has ordered the goods, and the consignee; the goods being shipped direct to the consignee and the jobber never seeing them. There are three possible bases for the valuation, namely, (a) the shipper's invoice, (b) the date and time of shipment, and (c) the jobber's invoice to the final buyer. Members reported much contention concerning claims on these shipments. It is expected that the new uniform bill of lading which the Interstate Commerce Commission hopes to decide upon and prescribe sometime within the next six months, will clarify this situation; but in the meantime the question is whether the League and the railroads cannot come to some temporary agreement. It was proposed to have a conference with a committee of the Freight Claim Association, but this was rejected as not meeting the situation. The freight claim agents deal only with questions between carriers, and have no authority as to questions between a carrier and a customer.

Many absurd transactions were cited. One railroad, to get at the value of goods at the place and time of shipment, requested the consignor to furnish the names of all of the farmers from which the goods had been bought, with a view to getting figures from each producer!

In the view of a number of members the Cummins amendment has had the effect of restoring the common law, so that the present provision in the bill of lading concerning values is illegal; the common law would require a railroad to pay the consignee's actual loss, regardless of technicalities.

A proposal to ask the Interstate Commerce Commission for a ruling interpreting the valuation clause in the present bill of lading was vigorously opposed, the claim being made that as the present bill of lading form is not in compliance with the law (as the Supreme Court is expected finally to decide) any expression by the commission, even of a temporary nature, may have a wrong influence in connection with the final action to be taken on a permanent bill-of-lading form; but it was finally voted to ask the commission for a conference.

Express Business

The committee on this subject reported the recent action of the express companies in asking authority for an increase of 10 per cent in their rates for the transportation of merchandise and expressed the opinion that probably such an increase, to be allowed only during the continuance of the war, would be justified. The express companies, no doubt, will agree to such a time limit and it is expected that there will be a hearing on the subject in December.

Shippers have complained that express companies will not consider a claim from a consignor until he gets a written release from the consignee. This is an annoyance because consignees in such cases frequently will refuse to comply. The committee was instructed to confer with the express companies; and to see that their rules were made public. Members who had gone to the highest officers of the express companies had succeeded in having subordinates soon brought to terms. A number of members narrated varied grievances. In the central west the express companies have returned the money on C. O. D. shipments 30 to 60 days behind time. All members were recommended to send their grievances to the chairman of the express committee, W. H. Chandler, Boston.

Miscellaneous Matters

There was a brief discussion on the recent action of the Interstate Commerce Commission in relieving the railroads of some of the former requirements concerning statistical reports; and it was voted to request the commission to continue the requirements for statistics of ton miles, loaded car miles and some other data in relation to certain important commodities, the argument being that these statistics are still kept up by the railroads for their own use, and that therefore the data can be sent to Washington without imposing on the roads an unreasonable burden.

At the banquet of the League at the Waldorf-Astoria on Thursday evening an address was made by Hale Holden, president of the Chicago, Burlington & Quincy, which is reported in another column.

The membership committee reported an increase in the membership of the League during the past year from 360 to 430. Members from Cincinnati, Cleveland, Toledo, Milwaukee and other cities reported on the activities of regional committees and their work in co-operating with the district committees of the American Railway Association. Generally satisfactory conditions in this respect were reported, though in some cases the railroads had complained that the commercial interests were not active enough.

The question of a place for the next meeting was referred to the executive committee. There was a strong sentiment that the League ought to have at least three general meetings every year.

U. S. RAILROAD OFFICERS GOING TO RUSSIA

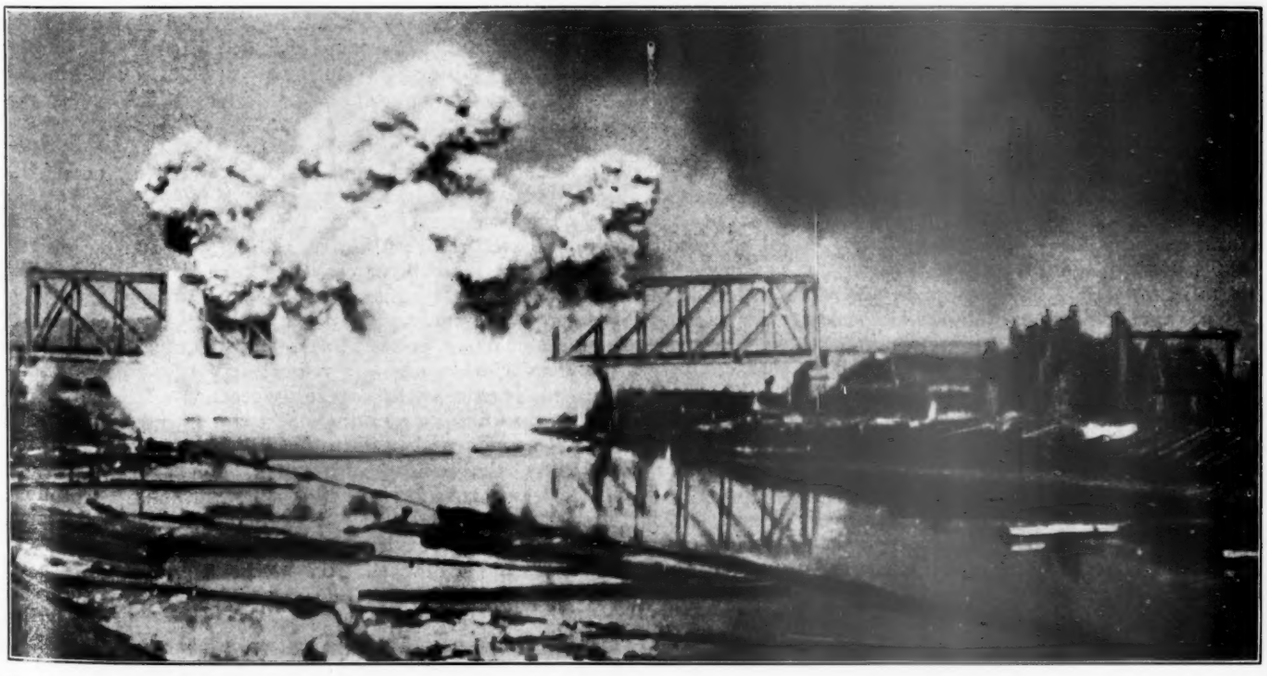
The personnel of the Russian Railway Service Corps, which has been recruited under the direction of S. M. Felton, director general of railways, from railroad operating and mechanical officers of the United States, to assist in the operation of the Russian railway system, particularly the Trans-Siberian Railway, has been completed, and the principal officers, with their railway and military titles, are as follows:

George H. Emerson, general manager, Great Northern, colonel; George S. Stewart, general superintendent, Great Northern, lieutenant-colonel; R. B. Hawkins, superintendent of motive power, Great Northern, lieutenant-colonel.

Majors: B. O. Johnson, division superintendent, Northern Pacific; Charles M. Winter, division superintendent, Minneapolis, St. Paul & Sault Ste. Marie; Frank R. Blunt, division superintendent; Collins Gravis, division superintendent; Andrew C. Peterson, division superintendent, Chicago, Milwaukee & St. Paul; Charles T. Spear, division superintendent; F. B. Irvine, division superintendent; George W. Tower, division superintendent, Chicago, St. Paul, Minneapolis & Omaha; M. F. McLaren, division superintendent; Samuel T. Cantrell, division superintendent; F. B. Parker, division superintendent; John H. McGlogan; assistant superintendent of telegraph, Great Northern.

Captains: J. C. Benson, master mechanic; John Delaney, master mechanic; James Casey, master mechanic; G. F. Egbers, master mechanic; Northern Pacific; H. A. Enochson, master mechanic, Chicago, St. Paul, Minneapolis & Omaha; Joseph B. Roach, master mechanic; P. G. Baker, master mechanic; W. C. Burel, master mechanic; Frank Buchanan, master mechanic, Chicago, Milwaukee & St. Paul; W. O. Williams, master mechanic; J. C. Climo, master mechanic, Chicago, Burlington, & Quincy, and A. R. McKabe, master mechanic.

The expedition also includes 24 traveling engineers, 24 trainmasters, 12 chief despatchers, six boiler foremen and one secretary to general manager, all with the rank of first lieutenant; two secretaries to general superintendent, one secretary to superintendent of motive power, 69 train despatchers, 3 line repairers, 1 lineman, 20 roundhouse foremen, 2 machine foremen, 3 engine erecting foremen, 4 boiler foremen and 1 foundry foreman, with the rank of second lieutenants.



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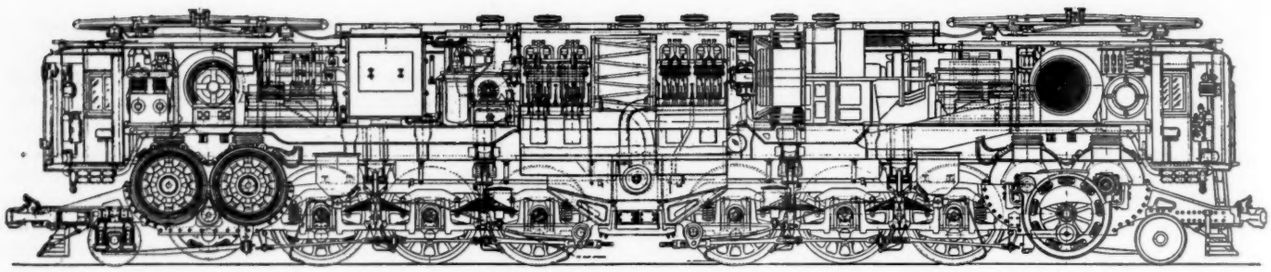
Remarkable Photo Showing Destroyed Bridge Blown Up in Russian Retreat Buckling and About to Fall

This remarkable photograph is one of the very few made during the war showing a bridge actually being blown up. The span can be seen buckling under the strain of the explosion, just before it fell, dense clouds of smoke rolled over the structure and water spouts all about showing the effect of the mines planted in the river. Russian engineers mined the river and destroyed the bridge as part of the usual military tactics for delaying a pursuing enemy. They also blew up a neighboring village that had been used as a munition depot to prevent its falling into the hands of the Teutons.



Longitudinal Section of the Locomotive Showing the Arrangement of Apparatus in the Cab.

Pennsylvania Electric Freight Locomotive

Details of Notable Features of the Running Gear Construction and Description of Electrical Equipment

TESTS have recently been made on the Philadelphia-Paoli electrified section of the main line of the Pennsylvania Railroad, of the experimental electric locomotive which has been built for main line freight service by the Pennsylvania Railroad and the Westinghouse Electric & Manufacturing Company. A brief description of this locomotive, including the principal dimensions, was published in the June 8 issue of the *Railway Age Gazette,* page 1199. It is the largest electric locomotive which has so far been built, having a starting tractive effort of 130,000 lb. and a total weight of 240 tons, of which 198 tons is carried on the drivers.

The locomotive has a nominal one hour rating of 4,800 hp. at 20.8 miles an hour, which is equivalent to a tractive effort of approximately 87,000 lb. The continuous rating is 4,000 hp. or 72,000 lb. tractive effort at a speed of 20.85 miles an hour, with the motors connected in parallel. For starting and slow speed operation, "cascade" connection of the two motors on each truck unit is provided. When regenerating at continuous capacity, the locomotive is capable of returning to the trolley system 4,400 hp. at a speed of 21 miles an hour.

In service between Altoona and Johnstown, where it is the intention eventually to use locomotives of this type, it is proposed to operate trains with one locomotive at the head end and one pushing. The continuous capacity at a speed of 20.85 miles an hour enables a trailing load of 2,300 tons to be hauled up a one per cent grade, 4,100 tons up a .5 per cent grade, or 11,000 tons on level track. Two locomotives operating under the proposed plan are expected to handle 3,900 tons westbound, where the ruling grade is 2 per cent, and to handle 6,300 tons eastbound over a ruling grade of 1.33 per cent. The speed chosen is considered to be about the maximum desirable for the operation contemplated and is governed by the size of trains as well as the characteristics of profile and alinement.

In the previous article was given a general description of the construction of the locomotive, but there are a number of features of the locomotive, both mechanical and electrical, which are worthy of more detailed consideration.

The method of securing a rigidly maintained gear center distance may be seen in the illustration showing the flexible jack shaft gear and motor pinions with the casing removed. The jack shaft bearing brass consists of a solid bronze bushing pressed into an eye in the side frame. The removal of this brass involves the removal of the main gear center from the jack shaft. The armature bearings are contained in housings which are fitted into pockets 27 in. wide by 14⅜ in. deep in the top of the frame casting. These pockets depart from the rectangular in that the sides are tapered 1 in. in 16 in., the housing being forced into the pockets under a pressure sufficient to produce local stresses in excess of any that will be imposed in service. The housings are then bolted in place both horizontally and vertically. The center distances between the gear and the motor pinions are, therefore, as securely fixed as if all three bearings were in an integral casting.

The active iron of both motor stators on each truck is mounted in a unit motor frame and locomotive cross-tie casting, which also surrounds the jack shaft. The armature bearings are arranged for oil ring lubrication, while the jack shaft is fitted with oil and waste lubrication, a large waste cavity being provided in the side frame casting above the jack shaft bearing.

The body of the jack shaft is 11⅛ in. in diameter with a long taper on each end to receive the gear center. The shaft is hollow, a hole 3 in. in diameter extending through from end to end. The gear center is of cast steel with a long hub which extends through the bearing brass and forms the running surface of the journal. The bore of the gear is tapered throughout its length and fits the taper on the end of the jack shaft. The gear center is pulled home to its seat on the shaft by a heavy nut on the end of the shaft, which is located in a counterbore in the outer face of the gear center. A heavy key in the taper fit insures the proper quarter of the crank pin. The crank pin is 8¼ in. in diameter and has a throw of 30 in. Opposite its center is a lead filled counterbalance with proper angular offset to compensate for transverse unbalance. A complete counterbalance is thus secured for all operating speeds.

The flexible gear is of the Westinghouse type which was developed for railroad service and has previously received wide application both on cars and locomotives. This, however, is the first commercial application in connection with rod drive and no other railroad application approaches it in the amount of power transmitted. The gear has a face 10 in. in width which is a radical departure from previous railroad practice with overhung gearing. This width is made practicable by dividing the gear rim at its midwidth into two rings, independent flexibility being provided for each ring relative to the gear center. The gear pinions are integral and each meshes with both rings, the independent flexibility of which insures an approximately equal division of the maximum load. The pinions and gear rims were manufactured by the R. D. Nuttall Company and are of heat treated steel.

The foundation of the cab structure consists of two built-up Z-shaped girders 26 in. deep, which are spaced 6 ft. 1⅛ in. apart. To the top of these girders is riveted a cover plate upon which the electrical apparatus is secured. At the mid-length of the cab is a built-in well 15 in. deep by about 3 ft. in width, containing the electrolyte supply from the liquid rheostat, the sides of which are supported from the center girder. To the bottom of this tank is secured the articulat-

ing device, which is of unique construction; in effect it is a link by means of which the inner bumper beams of the two truck units are held in contact, and by means of which all traction stresses are transmitted from the frames of one truck unit to those of the other through the bumper beams, without imposing any stresses upon the cab structure other than those due to its own inertia.

The inner bumper beam of each truck unit is a steel casting of box section, the vertical faces of which are circular arcs with radii equal to the distances from the center of the cab center pin bearing. The two castings are thus in rolling contact with each other as the angularity of the center lines of the two trucks changes, due to track curvature. Supported from the bottom of the electrolyte well by means of pressed steel channels are two steel castings, each of which forms one jaw of a longitudinal pedestal spanning the two bumper beams. This pedestal is closed by a binder generally similar to the usual type of locomotive driving box pedestal binder. The faces of the cast steel jaws are tapered and are covered by long vertical extensions on the binder to which are bolted steel wearing plates. When the locomotive is in operation the inner face of each bumper beam is in sliding contact with one of these plates. Both the inner and outer surfaces of the steel bumper beams are protected by steel wearing plates one inch thick, and held in place by countersunk bolts.

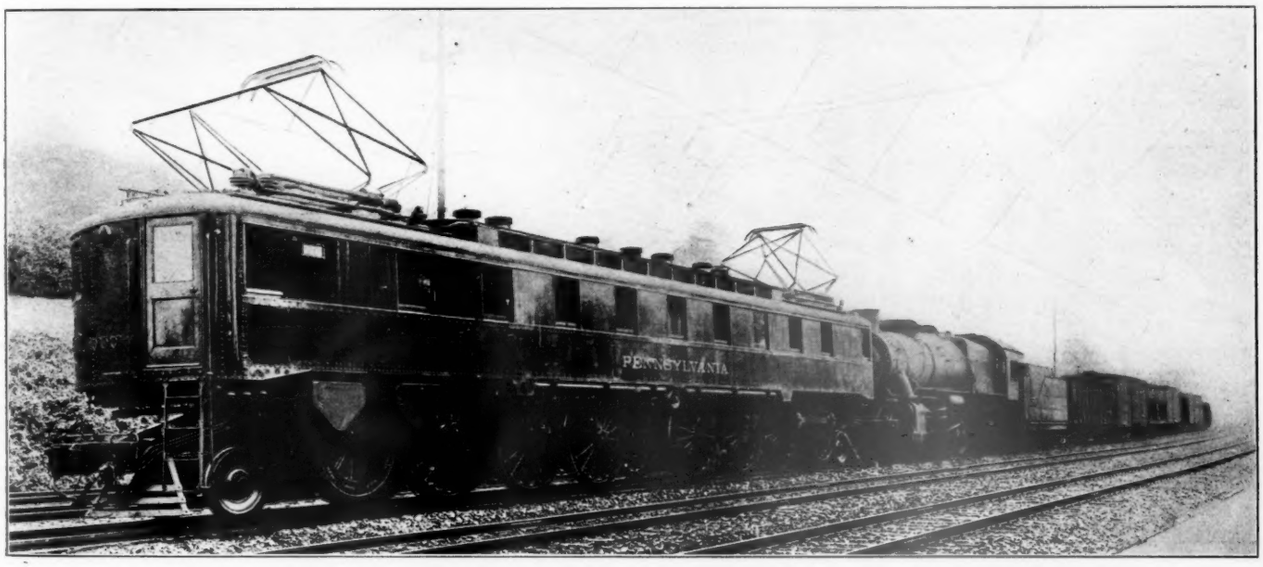
The longitudinal cross section of the locomotive shows in detail the arrangement of the apparatus in the cab. Single-phase current at a potential of 11,000 volts is collected by a pantagraph trolley, thence following a path through an oil circuit breaker to the primary of the transformer from which it is led to the framework of the locomotive, the circuit being completed through the rails to the substation. The secondary of the transformer supplies power to the phase converter, which may be considered as a combined motor generator, transposing a portion of the power to a phase displacement of 90 deg. from that of the transformer secondary voltage. This, together with the direct supply from the secondary of the transformer, forms a two-phase source of power which is combined by means of a Scott connection to give virtually three-phase energy.

A small single-phase motor which is mounted on the shaft of the phase converter is used in starting to bring the phase converter up to synchronous speed. It is then automatically cut out and used as a direct current generator to excite a winding on the rotor of the phase converter, to obtain a power factor of unity.

A series of taps is used on the main transformer partly to regulate the drop in the secondary voltage of the phase converter through its impedance when operating under heavy loads, and the rise in voltage when regenerating; also to correct the distortion of the phase of the secondary voltage under varying loads. Electro-pneumatically operated unit switches are used to change the various taps on the transformer in such a way as to enable the change to be made from one tap to another without disconnecting the phase converter from the secondary of the transformer, or momentarily short circuiting the transformer coils.

Three-phase power is supplied to each of the four motors through a set of five electro-pneumatically operated unit switches. These motor primary switches are also used as reversing switches. One is used commonly for both forward and reverse operation, and the other four switches are used in pairs to interchange the connection of two of the phases for obtaining forward or reverse rotation of the motors.

The motors are arranged for two-speed combinations, or normal regenerating positions, corresponding to approximately 10 and 20 miles per hour. On the low speed, each pair of motors is connected in cascade; on the high speed,



Pennsylvania Electric Locomotive Hauling an Idle Steam Locomotive and Freight Train

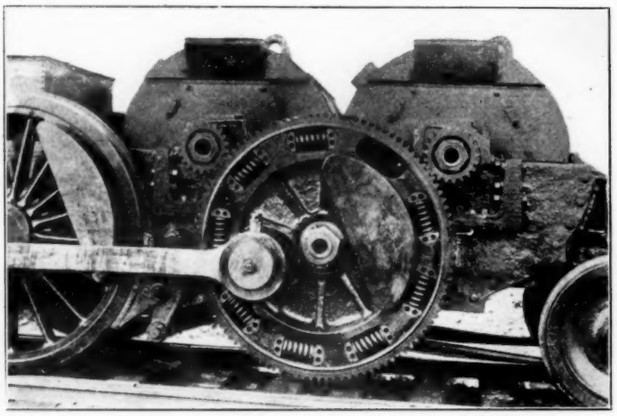
the motor primaries are connected to the three-phase supply in parallel, each secondary being connected to a regulating liquid rheostat. The control is arranged so that the change from one speed to another is made without losing more than half the accelerating or regenerating torque, this result being accomplished by effecting a progressive transition of the pairs of motors.

The liquid rheostats, which govern the acceleration of the driving motors, are located in two separate tanks, the castings of which are built as a part of the cab frame. Each tank contains two sets of electrodes. The liquid is circulated continuously through each of the tanks by centrifugal pumps. The level of the liquid in each tank may be varied independently by means of tubular overflow valves, which are controlled by differential air engines of the Westinghouse PK type. The rheostats are located in the center of the locomotive, one pair at each end of a cooling tower compartment containing two cooling towers. A small percentage of the liquid is by-passed to the top of the cooling towers and flows over the surface of the cooling trays back into the main tank. Air is blown over the trays in a direction opposite to that of the liquid. In this way the body of the electrolyte in the main supply tank is sufficiently cooled by the expenditure of a relatively small amount of energy for

pump operation, and the sacrifice of but a small quantity of electrolyte through evaporation.

When the liquid level in the rheostats has reached its maximum height, which occurs when the overflow valves occupy their uppermost position, a set of switches is automatically closed to short circuit the secondary motor winding and cut out the rheostats. A small motor generator set, the motor of which is of the three-phase induction type, provides a source of direct current for energizing the field of the phase-converter motor when it is operating as a direct-current generator to excite the phase converter motor winding. Power to operate the control circuits and marker lights is also obtained from this set.

One of the illustrations shows the master controller with the case removed. The upper handle, which is designated the "speed" handle, has three positions, one each for the 10 and 20 mile per hour combinations, and one midway between these two which is used as the transition position to enable one pair of motors to be changed over to a new combination without losing the accelerating or regenerating torque of the other pair. The center handle on the master controller controls the acceleration of the locomotive. It has three positions, marked "raise," "hold" and "lower." A movement of the handle to the "raise" position and then back to the "hold" position gives a positive increment of



The Motor and Jack Shaft Mounting

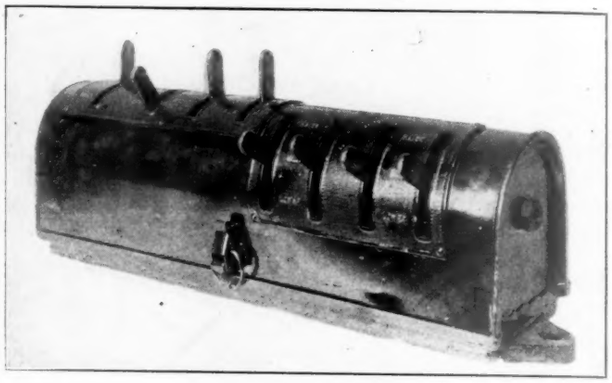
rise in the liquid level of the rheostats. Moving the lever to the lower position and then back to the hold position results in a lowering of the level of the liquid in the rheostats. In this way the speed of the locomotive is controlled during either the cascade or parallel connections.

Overload protection is obtained by a current limit relay. This has the advantage of not opening the circuit, but operates first to arrest the rise of the liquid level in the rheostats and then to lower the level if the accelerating current goes beyond a certain fixed maximum value.

The liquid rheostats may be operated independently of each other by means of levers located in an auxiliary controller. This provides a means of equalizing the load on the different pairs of motors and of reducing the current supply to one pair, without affecting the other pair. Other levers are provided in the auxiliary controller for raising and lowering the trolley, starting and cutting out the phase converter, and operating the phase converter voltage and phase balancing switches.

Due to the inherent characteristics of the induction motor regeneration requires no extra control equipment. Manipulation of the master controller is exactly the same for regeneration as it is for running. The manipulation of this type of locomotive is extremely simple for both running and braking, requiring no special knowledge other than the manipulation of the air brakes when handling heavy trains.

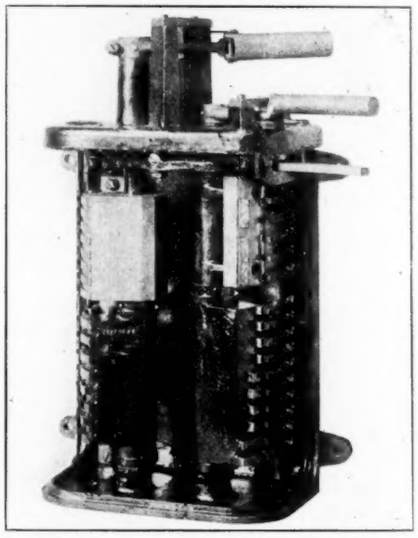
There are two compressor sets on the locomotive, each a four-cylinder, two-stage balanced compressor having a capacity of 150 cu. ft. These are manufactured by the Westinghouse Air Brake Company. The armature of the motor is fitted on the overhung shaft of the compressor. The motor is a Westinghouse four-pole commutator type for alternating current, and at 150 volts on each circuit develops 35 hp. continuous rating at 1,200 r. p. m. By making use of a single-phase commutator motor, the compressor set can be operated independently of the phase converter, the only other apparatus needed being the transformer. This motor has characteristics similar to a series motor and gives a high



The Auxiliary Controller

torque at starting. The compressor sets are controlled automatically by electro-pneumatic governors.

There are two sets of motor driven blowers on the locomotive. These blowers force air through ducts to the main motors, phase converter and main transformer. They are mounted one at each end of the cab. In the event of failure of one set, the air ducts and dampers are so arranged as to



The Master Controller with Case Removed

supply air to all the apparatus in the cab from the other set.

This feature also makes it possible to shut down one blower set while switching, and also to reduce stand-by losses. Although normally operating three-phase, the blower motor will run single-phase and act as a phase converter for the circulating pump motors. After a run, the phase converter may therefore be shut down and the blower motors will continue to run on single phase after having been brought up to speed on three-phase while the phase converter was in operation. This makes possible a further reduction in stand-by losses.

The American Railroads in War Time*

Comprehensive Review of War Board's Problems; Confidence in Ability of Roads to Carry Their Burden

By Hale Holden
President of the Chicago, Burlington & Quincy.

THIS League represents the energy and strength of the industry of the country; it visualizes the output of that industry *in motion* from producer to consumer. Your traffic is at once translated into terms of transportation; into the billions of ton-miles which the railroads of the country manufacture in the vital services they render to you. Modern war finds little by analogy in wars of the past; new terrors, born of the genius of diabolical invention have been met and endured and one by one are being surmounted. The practices of our commercial and industrial life of yesterday are being rapidly readjusted to meet the growing problems of this modern science of wholesale homicide and destruction and we must continue, as we have well begun, to bring our common effort into form best suited to the needs of the hour. Every month since April has added new momentum to this great machine of ours—the power of the American people—and willing co-operation, more than any other force, has brought this about. All of the great war measures, accomplished within a few months, were born of the sound morality of American citizenship, stirred from time to time by the great state papers of the President. . . .

At this point the speaker described the work of the Railroads' War Board in the organization of the railroads for the war. Speaking of the pooling of freight cars he said that approximately 160,000 empty cars had been moved from one line or part of the country to another to relieve shortage or distress, and that this probably had done more than anything else to increase the capacity of the railroad plant as a whole. In his judgment we shall not again return to former methods in this matter. Continuing, he said:

Empty mileage means added expense, and at a time when expenses are almost wholly out of control, it has been hard to incur; when cars for local needs have been scarce and hard to provide, it has been harder upon the individual road and upon the shippers on its line to let them go, but the larger needs of the country as given us by department or committee at Washington or as we have seen them, have governed, and cars ordered to competitor or connection have been delivered as directed without delay.

The Railroads' War Board felt that before calling upon the public to make sacrifices in its normal transportation rights and privileges, the railroads should prove that they had made the first response and as far as the means within their control would permit, had improved their own efficiency. Already, as comparative statistics demonstrate, the most efficient transportation machine in the world, and with lower rates and higher costs of operation, the increase in traffic handled gives ground to hope that thus far we have done our part. Without doubt, much more might have been done and the anxieties of the future point to much that must yet be done, but in passing judgment, you must remember that the life of this machine comes from the human hands that operate it and in the complex conditions about us, these hands sometimes fail us and at times they falter in the struggle with the overload of the plant; you must also remember that months ago, the intense industrial activity of the country, following the recall to Europe of thousands of able men, began to deplete our mechanical and repair forces, and now the problem of proper maintenance of track and equipment and indeed, of the efficient operation of trains, has become one of the serious anxieties of every railroad officer in the country. . . .

Observing the general increase in efficiency, critics have harshly asked why these things were not done long ago. The answer is that some of these more important measures were adopted knowing that to do them would add instead of decrease expense but were necessary to manufacture more transportation; and the savings accomplished by others have been long since absorbed by the mounting costs of operation. The response of employees and officers under the patriotic cry of the hour, and the magnificent response of the shippers of the country to the same call have had their part; and also the disregard by both shipper and railroad, in the common good, of some of the restrictions which have, in the exercise of the arts of peace, been imposed upon this over-regulated industry.

Future Measures

Cold weather is at hand with decreased efficiency of men and power and this, added to the growing scarcity of labor, gives much concern to the outlook for the winter. We have serious problems before us, but I think there is no reason for alarm nor indeed for doubt about the capacity of the railroads to meet the needs of the country. There are some things, however, which must be done to accomplish this and I base my judgment upon the faith that these things will be done.

In the first place, the remarkable results which have come from co-operation show that this co-operation must, at all hazards of differences of opinion or selfish interests, be continued. As difficulties multiply we must meet them by greater co-operation. Let us for the period of the war abolish and bring to an end the old spirit of complaint and criticism. We have in the past been too ready to criticize and to pass harsh judgment upon the motives and actions of each other. This is no time to rattle old skeletons; on the contrary, they ought now to be put well underground, and, if we do this, I think, they will permanently stay there. Organization such as this have done much in recent years toward a better understanding and, I think, the railroad men of the present day are striving earnestly and with unselfish purpose to render the service which the public is entitled to have.

The railroad plant today has definite limitations. It needs more power, but the output of the locomotive plants is going to supply the needs of the Government. We need more cars, but because of the needs of the Government and our allies not as much progress has been made as the traffic needs. We must remember, however, that it was only a little over two years ago that there were approximately 350,000 idle cars reported throughout the country. . . . It is unfair to say, as some have, that the railroads have broken down, because the truth is that they are doing more than ever before. . . . The Priority law accomplishes, legally, a necessary discrimination born of the emergencies of the war. More will have to be done in this direction and some traffic will in time have to be taken off the rails. Already we know that some forms of industrial activity will be curtailed. We can conserve the energies of the railroads, also, by not requiring them during the war to use men or mate-

*Abstract of an address delivered before the National Industrial Traffic League at the Waldorf-Astoria Hotel, New York City, November 15.

rial or train service for unnecessary improvements. The Secretary of War recently wrote to the chairman of the Indiana State Council of Defense, declaring that: "New enterprises which are not fundamental to the efficient operation of the country's necessary activities should not be undertaken." It seems plain that no substantial right nor interest can be seriously affected by the universal adoption at this time of this principle; if it is adopted it will take off the railroads a considerable volume of loading and release many men and cars for more essential work. The reduction of passenger service already has released a great many men for more important work and has accomplished a considerable saving in coal. The passenger travel of the country is heavier than it has ever been before and shows no signs of abatement, and the public may have patiently to submit to further curtailment of passenger service.

We must make greater use of waterways, electric lines and motor trucks, and no better time than the present can be found to make the experiment. There are some stubborn facts, growing out of the big American freight car and the low American freight rate and the industry and team tracks and freight houses located conveniently in every city and town, which, I think, have had more to do with the inactivity of traffic by river or canal in this country than anything else; but in this time of heavy traffic, let us take a new look at the problem and see if some valuable use cannot be made of these natural highways. The War Board has said that the railroads will welcome any practicable water transportation, and they are prepared to co-operate cordially with responsible persons or corporations who may provide such water transportation. This guarantees our interest, I think, in the subject.

In many parts of the country freight is interchanged in considerable volume between steam and electric lines. Locally, electric lines are handling an increasing tonnage. Motor trucks present an admirable means for effecting delivery of package freight to nearby points and as to all of these I am satisfied that the railroads are prepared to join in reasonable measures to develop the use of them.

Facilities Must Be Increased and Kept in Repair

But we must not stop here, when traffic is rapidly increasing and we see great plants and ship yards being constructed. The railroad facilities of the country must be increased and they must be kept in repair, otherwise they will embarrass and delay us. After a memorable interview with General Joffre, it was not difficult to surrender our space in American locomotive shops in order that the urgent needs of the French might be first supplied; and we did the same for Russia; and naturally the engines, cars and other railroad supplies needed by our own Government for its foreign operations have preceded ours. These things had to be done whether the American railroads could afford to do them or not. After learning from the great marshal the part played by the locomotives of France in the Battle of the Marne, there was but one answer.

We are building railroads in France and engines and cars to operate them, and we must not fail to build whatever is necessary here. To support our operations there, we must not fall behind here. We must have priority for materials and manufacture here, as may be necessary, and the benefit of prices fixed by the Government, and in these, the Government will, without doubt, lend us its aid. We must keep our shops running as now at full time, and competition of other industries must not be permitted to decrease our repair forces nor military service to take more of them than absolutely necessary, lest we may have, as others did, to call them back from the front to do this most important work at home.

Plainly, in these times, the railroads must have more revenues. Railroad expenses nowadays are an open book, and the predictions made last spring in the effort to obtain timely relief failed only in that the increased cost has greatly exceeded the conservative estimates then made. These things seem to me, however, not difficult to do—and yet the doing of them adequately and in time will likely determine the success of the efforts the railroads are so earnestly putting forth to help win the war. I have faith that all of these things will be done, because the measure of success in this war-time service to the Government will be that we do for it now everything that patriotism and love of country can do.

IOWA COMMISSION APPROVES CURTAILMENT OF TRAIN SERVICE

The Board of Railroad Commissioners of Iowa has given its endorsement of the policy of the railroads in curtailing unnecessary passenger train service during the war, in an opinion reaching the conclusion that the Chicago Great Western should not be required to reinstate two passenger trains in each direction between Cedar Falls and Cedar Falls Junction, Ia., which were discontinued in April. The railroad had formerly operated four trains in each direction between the two points and a complaint regarding the reduction in service was filed by the Cedar Falls Commercial Club and the Iowa State Teachers' College. At the hearing it was shown that one of the trains discontinued during the year ending March 31, 1917, had carried an average of less than 10 passengers for each round trip and that the other had carried an average of about 12 passengers each round trip and that upon the whole service the earnings of the railroad did not equal the expense. There was also a showing that by reason of the discontinuance of the trains the International Harvester Company was unable to reach its patrons with express packages from its distributing plant at Cedar Falls with as much despatch as before and there was some showing that freight did not arrive at and was not taken away from Cedar Falls with the same promptness as before. It was also shown that service was available via the Illinois Central, the Chicago, Rock Island & Pacific, and the Waterloo, Cedar Falls & Northern. The commission says in its opinion:

"We recognize that the service given by the Chicago Great Western Railroad Company prior to the discontinuance of said trains was very convenient for the people of Cedar Falls. We think it would hardly be claimed that it was necessary, and the showing certainly is that the trains were not well patronized.

"In addition to these facts, this commission thinks it should so regulate and control the service to be furnished by railroad companies at this time as to avoid the expenditure of large sums of money either directly or indirectly simply for the convenience of a few people. This country is now at war and the railroads are absolutely necessary to the proper conduct of that war, and where the public safety and public necessity are not manifestly and eminently endangered, we cannot be expected to order the railroads to operate trains where their operation is a mere matter of convenience and not a matter of necessity. The railroads of this state must be permitted and encouraged to use their whole equipment, including their funds, to carry on what is now the supreme business of this country—the business of war—and to facilitate the distribution of food, fuel and other necessities of life. Mere matters of convenience, which are desirable in times of peace and for the purposes of peace, will have to wait until peace comes.

"The application is hereby dismissed."

The G. T. R. Patriotic Association contributed $2,000 to the British Red Cross Fund, for which special contributions were raised throughout Canada during October.

The Work of the Army Engineer Corps

The Railway Section, an Important Part of the Corps, Has Ordered $70,000,000 Worth of Material to Date

THE Committee on Public Information has given out a statement outlining the work of the corps of engineers of the army during recent months which includes that of the railway section carried out under the direction of S. M. Felton, director general of railways.

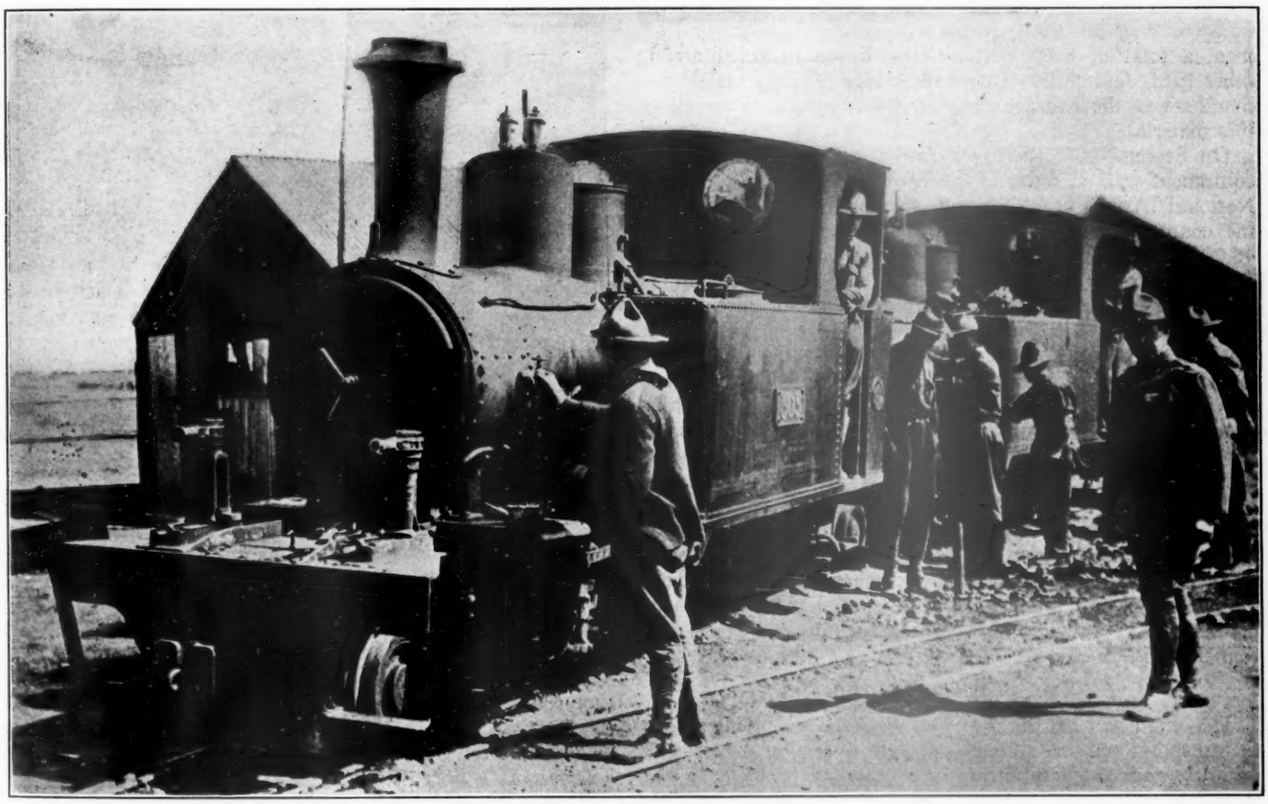
The corps of engineers since April 6 has not only been supplying the engineer equipment for an army of a million men, but has undertaken the unprecedented task of furnishing railroads complete from the United States for operation in France. The engineers construct the free arteries through which flow great armies, reinforcements, supplies and ammunition to the extremities of the lines.

From March 1 to November 1 the corps of engineers increased its personnel from 256 officers on the active list to 394 officers and 14 retired officers on active duty and in addition has commissioned more than 5,000 reserve officers. The enlisted force has expanded from 2,100 to 95,000 and there has also been a heavy increase in civilian employees.

The enlisted strength of the corps on March 1 consisted of 3 engineer regiments of peace or minimum strength and 1 mounted company. On May 15, 4 remaining increments, authorized by the National Defense Act of June 3, 1916, increased the enlisted strength of the Corps of Engineers of the Regular Army to 7 regiments and 2 mounted battalions, all of which have been raised to war strength.

In addition, 9 railroad regiments and 1 forestry regiment have been raised as part of the National Army. Seventeen pioneer regiments have been authorized as part of the National Army and are rapidly organizing. National Guard units, equivalent to about 7 regiments, have been called into the federal service, and their reorganization into 17 pioneer engineer regiments for the 17 divisions of National Guard troops is well under way.

Engineer officers' training camps were established in each of the 16 training camp areas, the number of candidates for engineer commissions taken from each camp being 150.



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This British Official Photograph Shows American Railway Engineers at Work on One of the Light Railways Behind the British Front

After a month's training in the same camps with candidates for commissions in other branches of the service, the engineer sections were transferred to three engineer training camps with special facilities for technical instruction, one in the vicinity of Washington, D. C., one at Fort Leavenworth, Kan., and one at Vancouver Barracks, Washington. Instruction was continued there for two months. In August, 1,900 candidates were graduated and now hold commissions. Large numbers of engineer graduates of training camps have been assigned to new regiments and special units are being organized and the training of enlisted men in the National Army will be largely under their supervision. A number are in France for special training.

On December 1 about 1,200 engineer reserve officers will be graduated from a second engineer officers' training camp.

A duty imposed upon the engineers has been the purchase of the necessary engineer equipment for more than one mil-

lion men. The Urgent Deficiencies Act, approved June 15, 1917, appropriated for the purpose amounts aggregating in excess of $130,000,000, an amount comparable with the purchases of material, equipment and supplies for the Panama canal during the ten years of its construction. The Urgent Deficiencies Act, approved October 6, 1917, provides $198,100,000 additional for engineer purposes, and it is expected that all of this will be expended during the present fiscal year.

In the work for the fiscal year 1916 one officer and 21 civilian employees were engaged in making purchases aggregating $550,000. On November 1, 1917, the purchasing force had been increased over 1,000 per cent to 52 officers and 193 civilians. All but two of these officers were examined and commissioned in the Reserve Corps after the outbreak of the war.

Within 350 hours after the Engineer Corps, following the declaration of war, advertised for equipment, awards had been made covering the requirements of one million men, a total of 8,700,000 articles, which included among other items four miles of pontoon bridge. Approximately two months was the average time of delivery secured on all of this material.

On September 7, two weeks after receipt of instructions, equipment was en route to the various National Guard and National Army organizations at cantonments throughout the country. These shipments comprised a total of about 48,000,000 lb. in some 64,000 separate cases and packages.

By November 1 the outstanding obligations on orders placed for engineer material, equipment and supplies, aggregated $130,000,000 and disbursements in payment for material delivered had reached the sum of $15,000,000 per month. Another important task of the engineers has been to provide efficient methods for the receipt, storage and shipment abroad, with proper accounting system, for this mass of supplies as well as for the vast equipment for field operations and construction work.

This work comprehended the selection, in a short time, of appropriate sites in various cities, the leasing of land, storehouses, piers, railway tracks, and the purchase, when they could not be leased, of such material as locomotive cranes, electric trucks, and similar appliances for freight handling, together with the organization of competent personnel.

The Railway Section

The engineers of the Railway Section have undertaken to transport, and install and put into operation overseas, a complete railroad equipment. The railway problem in the theater of operations in France involves not only the organization, equipment and military training of railroad troops for the construction, maintenance and operation of standard and narrow gage roads necessary for the supply of our armies, but also the purchase, inspection and shipment of immense quantities of railroad equipment, rails, ties, locomotives, cars, shop tools, etc., necessary for the development of adequate port facilities, construction of new lines and their successful operation. The estimate of the situation in France was confirmed by the French Commission, headed by Marshal Joffre, and the means of meeting it have been carried on with intensity. The measures provided respond to the recommendations of the commission of expert railroad men which was sent abroad and reported in detail the transportation conditions that would confront our armies from the ports to the front.

Trained officials in various departments of American railroads were called upon for the officers, and experienced railroad employees for the enlisted men, of the nine railroad regiments, each of 33 officers and approximately 1,100 men. Three regiments were organized for operating railroads, every class of operatives being provided; five regiments were organized for construction, officers being experienced railroad builders and the enlisted men being bridgemen, trackmen, etc., and one regiment was composed of men experienced in the departments of motive power and car repair.

The cost of materials ordered to date is approximately $70,000,000, including some hundreds of locomotives, more than 100,000 tons of steel rails, more than 3,000 complete turnouts, 500,000 ties, 12,000 freight cars, 600 fill and ballast cars, 600 miles of telephone wire and apparatus, as well as vast quantities of construction and repair equipment.

An organization of engineers was prepared for the construction in France of piers, storehouses, terminal stations, hospitals, cantonments, roads, water supplies, sewage disposal plants, lighting plants and similar construction. A vast amount of timber and other supplies was purchased and shipping arrangements made. Within four days of the receipt of General Pershing's cablegram asking for certain steel buildings, designs had been prepared, competitive bids secured and orders placed for 30-day delivery. A construction company, contracted with to build wharf structures in France, sent abroad 225 men in August and the necessary material. Preferred attention was given to wharf and storehouse construction, at the request of General Pershing.

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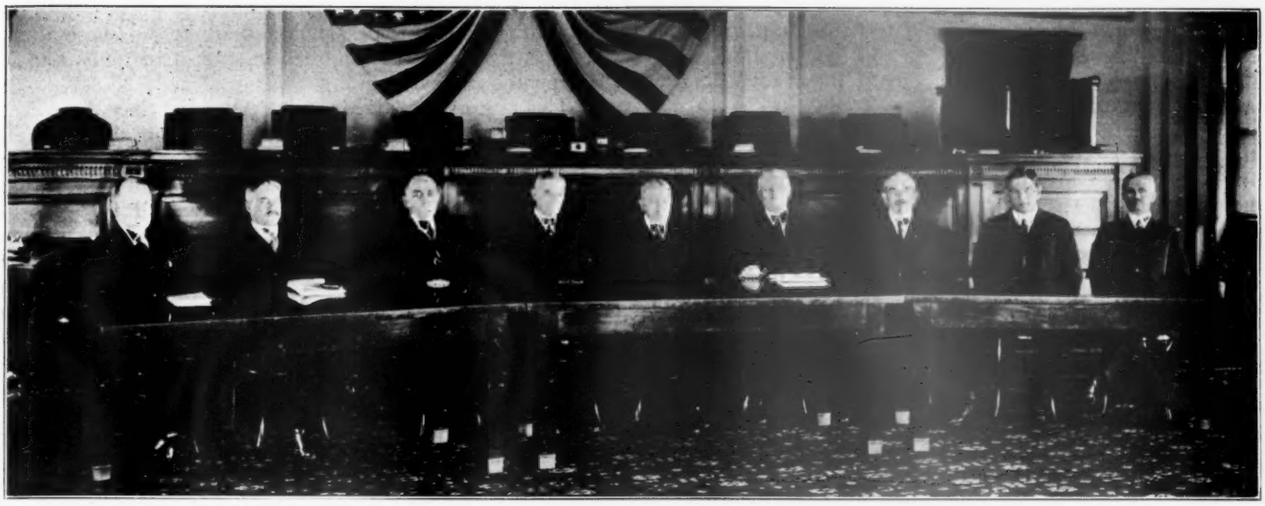
American Railway Engineers Preparing for Construction Work on a Light Railway System

The engineers have also undertaken the work of organizing and equipping special troops for special services, such as lumber supply, road construction, sanitary construction, camouflage service, gas and flame service, mining work, mapping, etc.

Preferred attention has been given to the organization and equipment of the first forestry regiment, to be sent to France to produce lumber and timber from French forests. Three additional regiments are to be organized. The co-operation of the forestry service of the Department of Agriculture has been extended in the selection of personnel and equipment. About 80 per cent of the forestry regiment's equipment, value $350,000, has been delivered for shipment, weighing over 2,000 tons, with 12 saw mills, truck and railway equipment and everything necessary to produce over four million board feet of finished lumber per month.

In addition to all of these duties the Engineer Corps has maintained its regular service in the preservation and improvement of navigable waters in the United States and construction of coast defenses. New batteries are being pushed to completion with energy.



Interstate Commerce Commission, Left to Right—Robert W. Wooley, Winthrop M. Daniels, Charles C. McChord, Edgar E. Clark, Henry C. Hall. Chairman, James S. Harlan, Balthasar H. Meyer, Clyde B. Aitchison and George W. Anderson. Photo from Clinedinst Studio, Washington, D. C.

Proposed Eastern Freight Rate Increase

Arguments Concluded and Case Submitted to Commission—Bankers Testify Regarding Railway Credit

WASHINGTON, November 29, 1917.

THE re-opened fifteen per cent rate case was submitted to the commission on November 19. At the same time George Stuart Patterson, counsel for the eastern roads, announced that as soon as possible the eastern carriers would file applications with the commission asking for another advance of 15 per cent in classes and commodities, except coal, coke and iron ore. As to them the request will be for specific advances of 10 cents a ton.

The hearing of the case took four days—a remarkable record in comparison with any other advanced rate case ever known. On November 15 the executives who had testified on November 5 returned for cross-examination, Messrs. Rea and Elliott being particularly selected for that ordeal at the hands of Clifford Thorne. On the next day the commission listened to Frank A. Vanderlip, president of the National City Bank and Paul Warburg, vice-governor of the Federal Reserve Board, who were called by the commission as experts to tell about the financial condition of the carriers. Their appearance made it necessary to put off the appearance of Clifford Thorne as a witness until the next day. His testimony was supplemented on behalf of the shippers by J. P. Norton, a stock and bond statistician. Thorne used the whole of Saturday and the arguments were put off until Monday, November 19.

The two sides were represented in the final arguments by George Stuart Patterson and Clifford Thorne. Commissioner Anderson, near the close of the arguments, asked them whether, disregarding the railroads' need of revenue to build up their credit with the investing public, the existing rates are high enough to enable the carriers to maintain themselves as going concerns capable of fulfilling their obligations as common carriers under the war strain.

"Absolutely, yes," said Thorne. "And you have no right to allow any advances for any purpose other than maintaining the properties of these carriers and paying the stockholders a reasonable return on their investment."

George Stuart Patterson was equally certain the present rates are not sufficient for that purpose.

"I am as absolutely certain as I am of my physical being, that the present rates are not high enough to maintain these properties," said he.

Throughout the hearing and argument ran the suggestion that the government should make loans to the railroads to buy equipment and extend their terminals. There was no enthusiasm on the part of either railroad men or shippers. The suggestion was made more often by a commissioner than by either party to the controversy. The only man who was strongly in favor of the plan was Benjamin C. Marsh who said he came from New York, as the representative of the American Committee on the High Cost of Living. He put forward government ownership as the panacea. If that could not be had he wanted the rate advances postponed until the valuation of the railroads is completed, so that, as he said, a proper basis for dividend paying and rates could be known.

President Rea admitted that the time had come for seriously considering some plan whereby the government would provide capital but he said that even if the government provided all the cars, locomotives and terminals needed to make an efficient plant the roads would still need more revenue for operations. He said the Pennsylvania is in exceptional financial condition but there are important roads in the eastern district that are in bad shape that are just as important to shippers as carriers in better position. He said the Altoona shops of the company are turning out 22 locomotives a month and in September they had made the record 30. Answering a question by Commissioner Clark, Mr. Rea said that 100,000 cars should be built. A government loan for that purpose would be favored by him if the cars were built on the car trust plan, but on more liberal terms than have yet been devised. Some railroad men, he said, believe that 100,000 cars "pitchforked" into the situation now would make it worse than it is, their contention being that the first need is locomotives.

Commissioner McChord wanted to know what could be done if the government provided the money for the equipment and terminals needed..

"Then the element of time would have to be considered," said Mr. Rea. Mr. Rea admitted the force of Mr. McChord's suggestion that money is not the only element and then followed with his declaration that even if the money was provided for all the additions usually charged to the

capital account, the carriers could not afford to forego their request for higher rates.

"How many cars would you buy if these advances were allowed?" asked Mr. Thorne.

"I can't tell," said Mr. Rea. He added that it is useless to place orders for cars or locomotives without first obtaining a priority of manufacture order because the builders are now working mostly on government account.

Answering a question by J. V. Norman, representing southern hardwood lumbermen, Mr. Rea said that the estimated increase in expenses of the Pennsylvania included war taxes. He thought the roads should be allowed to earn a fair return over war taxes but should not pass all the taxes on to the users of railroads.

Commissioner Clark raised a question as to the propriety of allowing an advance in rates to cover improvements, because, as he suggested, that would be equivalent to making a donation and then having the donors taxed to pay a fair return on the amount.

Howard Elliott was asked, when he took the stand, to point out what, if anything, is wrong in the commission's indictment of the financiering done by the former controllers of the New Haven. Mr. Elliott said that would be a long question and a long answer. He pointed out, however, that the capitalization of the road has been reduced $12,000,000 since the report was written. Mr. Elliott gave a compilation of the figures showing the investment of the New Haven devoted to freight business to show that the existing rates do not pay the necessary return on investment.

Mr. Vanderlip's Testimony

"So long as railroads are regulated as to rates, they should have the advantages of the ecnomies of combination," Frank A. Vanderlip, president of the National City Bank of New York, told the commission on November 16, responding to the invitation of the commission to address himself to the general financial situation as it affects railroads. Mr. Vanderlip said he believed regional consolidations of railroads should be permitted. The advance of 15 per cent in rates under consideration at present would, if granted, assist in restoring the willingness of the public to provide the carriers with new capital, said Mr. Vanderlip, but it will not be a cure for what he described as fundamental faults in the railroad situation.

"Before the situation is cured," said Mr. Vanderlip, "we will either go into the hands of the government or we will permit the railroads to consolidate. The railroads can learn something from the experience of the bankers. They have thought too much of their own problems and have not been thinking nationally. I should like to put representatives of the government on their boards of directors, representatives of labor and representatives of the public, after the fashion of the Federal Reserve Bank directorates."

Mr. Vanderlip said that the cure for the railroad problem should come from the commission, but that he had made his suggestions because the mere earnings of the roads do not appear to reflect accurately a situation the chief menace of which is the unwillingness of the public to purchase railroad stocks. He said that the railroads face government ownership unless the public can be convinced that railroad investment is desirable. None of the practical methods of obtaining money for the carriers is open, except at high rates of interest, he said. The roads need a billion dollars a year for improvements and extensions, in his opinion.

Mr. Vanderlip said the stocks of roads prudently constructed and managed should be slightly above par, as a reward for prudence. Commissioner McChord detailed the earnings of the carriers since 1912, indicating generally that these earnings have risen. Mr. Vanderlip said that while these earnings might indicate an increasing prosperity, market quotations of stocks indicated that the public is not satisfied with them and asserted that he preferred, as an index to value, the consensus exhibited in stock quotations to tables of expenses and earnings.

"The returns," said Mr. Vanderlip, "appear to indicate that roads are doing well, but investors do not think so."

Returning to fundamental changes which he believes are necessary, Mr. Vanderlip suggested the feasibility of a single corporation owning all the cars in the country. He said that fundamental changes must be made or government ownership lies ahead. He asserted that the railroads are not meeting demands for service and laid emphasis on the fact that service is more important than rates and that the public is willing, except an extremely selfish part of it, to pay for service when it is rendered.

Commissioner McChord asked if the decline of railroad stocks was due to a concerted assault by bankers.

"If you assume bankers have made a wholesale assault upon railroad securities, I deny it," said Mr. Vanderlip. Mr. McChord said that he had received messages at night concerning railroad stocks, but indicated that they had come from brokers. Mr. Vanderlip insisted upon a distinction between bankers and brokers and said that if banks were sending messages about the stock market to a member of the Interstate Commerce Commission at night the attention of the comptroller of the currency ought to be directed to them.

Mr. Warburg's Testimony

Paul Warburg, of the Federal Reserve Board, who also was invited by the commission to give its members his best judgment about the condition of railroad credit, said that every industry which contributes to the winning of the war should be encouraged and that foremost among those industries are the railroads. Index prices, he said, show an increase of about 100 per cent in wholesale prices since the beginning of the war. Higher interest rates and higher dividends are essential to attract the investing public. The investor is in doubt as to the future of railroads, the quantity of labor available and the price of material. Mr. Warburg said that the public was uncertain about whether the railroads would be dealt with generously.

In seeking an explanation of this statement, Commissioner Woolley said it seemed that the railroad situation was caught in a "vicious circle" if rates must be raised to meet higher wages and higher material prices and raised again as these quantities again advance. Mr. Warburg agreed that this "vicious circle" exists and suggested as a remedy that the government fix the wages of labor as it has fixed the price of materials.

Mr. Warburg said that the sale of railroad securities had become practically impossible and that he thought the roads should be permitted to obtain revenues which would enable them to keep their properties in as good condition as they were at the beginning of the war.

Discussing a suggestion that the railroads conserve their revenues by discontinuing the payment of dividends, Mr. Warburg asserted that such a policy would be fatal to railroad credit and that it would seriously affect the incomes of that large part of the public which owns railroad securities, and upon which the government depends for a large part of its war revenues. Railroad stocks have declined, on an average, about 20 per cent since the beginning of the war, said Mr. Warburg, and this decrease, together with the lessened value of railroad bonds, has brought about a shrinkage in values of about $2,800,000,000. This is of serious interest to banks which hold about two billions of these securities as collateral for loans.

"Present conditions," said Mr. Warburg, "are such as to demand an increase in railroad revenues."

A desirable situation, he said, would be one in which the proportion of railroad stocks to bonds could be materially

increased, with the stocks quoted sufficiently above par to permit the flotation of new issues as rapidly as they might be required for extension and improvement of the roads. He pointed out that at present there are no new issues of railroad stocks and no market for them.

Mr. Warburg laid stress on the fact that these times are extraordinary, that many ordinary considerations have been waived in the fixing of prices by the government and that the principal consideration under war conditions is to attain results rather than to consider price. If, after the war, the commission finds that the revenues of the roads are too large, they can be reduced, said Mr. Warburg, who, in response to a question by Commissioner Meyer, said that he did not think the public is primarily interested in whether or not the railroads have built up from recent earnings a new equity on which dividends must be earned in the future.

At present, said Mr. Warburg, investors want to buy United States government bonds, exercising a preference that goes beyond the mere question of financial return. This makes more difficult the marketing of railroad securities. He expressed the opinion also that while the government is financing the war, industrials issues should be restricted as much as possible.

George W. Norris, of the federal Farm Loan Board, concluded the session by giving the commission the result of his experience in handling farm loan debentures and other securities, laying stress on the fact that many investors select their investments because of considerations other than the promised financial return from them.

Closing Arguments

Arguments on November 19 were made in the following order: Mr. George Stuart Patterson for the railroads; C. H. Reynolds for the natural ice shippers of the Pocono hills; Graddy Cary of Louisville for the National Livestock Exchange; Walter E. McCornack for the interior Iowa packers; J. V. Norman for the southern hardwood lumber manufacturers; L. C. Boyle for the National Lumber Manufacturers' Association; C. D. Chamberlin for the independent petroleum refiners; Francis B. James for brick and tile manufacturers; Samuel H. Cowan for the Texas livestock growers; Clifford Thorne for the Iowa livestock men and farmers' grain elevators; B. C. Marsh for the cost of living committee, and Mr. Patterson in closing.

In the closing arguments the rate situation was overshadowed by the question of public policy raised by the suggestion of a government loan. In commenting on that phase the shippers suggested that Congress should deal with it. Chairman Hall asked Mr. Cowan whether he had spoken to Congress about the matter. Mr. Cowan said he had spoken with Senator Newlands and to shippers, and he found a considerable sentiment in favor of the proposal, if it could be shown that the railroads really need help. Mr. Thorne, naturally, both as a witness and as an attorney, said they do not need help; that the surplus accumulated in 1916 and 1917 should be used to meet the emergency. He filed a compilation showing that the surplus laid aside in the two years by the 38 eastern systems was $147,000,000 in 1916, and $145,000,000 in the year ended June 30 last. In the former year the dividend amounted to $117,500,000, and last year to $126,000,000.

Argument for the Carriers

In concluding his argument for the carriers Mr. Patterson said that the relief granted by the commission earlier in the year amounted to $97,000,000, and that the rates now under consideration would add $58,000,000, or a total of $155,000,000. This, however, would account for only a little more than half of the great rise in wages and materials, which had added $278,000,000 to the operating costs. Mr. Patterson stated that, as a hearing would have to be had on the further increases in rates necessary, application would be made by the Eastern carriers for permission to file tariffs making such further increases.

The essential facts of the situation, as recited by Mr. Patterson, were:

1. A continuous decline in net operating income, accompanied by a steadily increasing basis of cost of operation, and this in the face of increasing traffic, property investment, and in average car-load and train-load.
2. A decrease in both the supply and character of labor available for railroad operation, which is being daily intensified, and which will still further increase in the future the cost of operation.
3. The existence of deferred maintenance at a time when the highest standard known should be maintained, the further postponement of which will increase its cost, and decrease the operating efficiency of the railroads.
4. Inability to secure new capital by the issuance of stock, and the necessarily weakening effect upon the credit of the carriers.
5. Inability to make improvements imperatively demanded by the necessities of today and the traffic of the future.

Commenting on the rise in wages, which has already added more than $100,000,000 to the payrolls of the Eastern carriers, Mr. Patterson said that these advances were still going on, the Pennsylvania Railroad alone having made increases in wages in the past month amounting to more than $7,000,000 a year.

"As our armies increase into the millions," said Mr. Patterson, "and as the carriers are called upon to meet the competition of labor with industries whose prices are regulated or unregulated, or called upon to meet the competition of labor with the government itself, the available supply of labor will decrease, and its price will rise, and unless the government is prepared not only to conscript labor for the railroads, but also to limit its wage, we must assume that the present cost of labor, measured by wage and efficiency, will not decrease."

Mr. Patterson said that so far as it is humanly possible to look unto the future, there is no immediate prospect of any reduction in the cost of conducting transportation, and the cost of maintaining the railroad properties. He said that the increased cost of coal for locomotives is $86,000,000 and that the price recently fixed by the government is higher than that now being paid by many of the carriers. The recent increase in wages to the miners would automatically increase the price to the carriers. The estimate of the carriers as to the average increase in the cost of materials other than coal is 42 per cent. Mr. Patterson cited the fact that the government price for pig iron, the products of which are largely consumed by the railroads, is 105 per cent above the average price paid in the five years before the war; that the government price of copper is 68 per cent higher, and the government price for coal 115 per cent above the pre-war level.

Particular emphasis was laid by Mr. Patterson upon the fact that the Eastern carriers are finding it increasingly difficult to provide for the upkeep of their properties. He stated that not only was the cost of labor and materials necessary for maintenance higher than ever before, but it was difficult to get the labor and materials, and this deferred maintenance was becoming a matter of very serious concern.

Mr. Patterson estimated that for the year 1917 the Eastern roads would show a loss of $81,000,000 in net operating income, despite an increase of $161,000,000 in total operating revenues. This would be a return on property investment of only 5.2 per cent, or less than the amount which the commission in 1914 found as being lower than demanded in the public interests. He said that the Baltimore & Ohio, without further relief in rates, would not earn its dividends; that the Pennsylvania would have a surplus for the year of only

1.6 per cent on its capital obligations; and that the New York Central would have a surplus of only 1.3 per cent after the payment of dividends.

Mr. Patterson said in conclusion:

"I have not said anything today as to the close and intimate relation which the question of increased rates bears to the successful prosecution of the war. That has been dealt with at length by Mr. Daniel Willard, of the Advisory Commission of the Council of National Defense, and by Mr. Paul Warburg, vice-governor of the Federal Reserve Board, who are far better able than I to speak on that question. They have told you in substance that increased railroad revenues are essential in aiding the government to the successful prosecution of the war. I may, however, say this in conclusion, and I desire to say it with all the earnestness that lies in my power, and to you who are so keen to do the right thing, the inadequacy of the revenues of the carriers has ceased to be a purely economic problem, and is today a vital question of the national defense."

Mr. Thorne's Argument

Mr. Thorne was very solemn in his argument. He invited the commissioners to consider the situation.

"The statement has been made that during the first year of the war the government will need twenty billions for war purposes," he said. "The income of the people of the United States is about forty billions, possibly more. Just think what that means. One half of every man's income, in one form or another, to be taken for war purposes.

"This is not the time for a combination of business men to come to Washington suggesting the imposition of still further burdens. They say this burden will be for the period of the war only. It is our bitter experience that rates go up but there is never a general reduction. In 1916, with a net $100,000,000 greater than it had ever been were these railroads suggesting that they might reduce their rates?

"The United States government has already issued seven billions in securities. Last summer you gave these carriers $100,000,000 additional revenue. Now they are asking for $58,000,000 more. That is more than five per cent on a billion, in all the interest at five per cent on more than three billions.

"What is the limit of this never-ending cycle of higher costs and higher rates?

"Can these railroads be seriously and respectfully asking for advances because they cannot maintain their properties? Can the New York Central, which earned 15 per cent on its capital stock tell you that it cannot maintain its properties? Can the Pennsylvania be serious in making such an assertion in the face of its surplus of $30,000,000 for the year ending last June? In the year ending June 30 last these carriers declared dividends amounting to $126,095,909 and laid aside a surplus of $145,009,363."

Thorne said there are several courses, other than raising rates, that could be followed, if the railroads were really in a serious condition. One of them is the loaning of money to buy equipment and terminals, to be repaid from earnings.

"Are present rates such as to keep the railroads in such a condition that their stocks would be good for prudent investors?" asked Commissioner Anderson, who had asked that Thorne disregard the question of credit. "Absolutely, yes," said Mr. Thorne. "You have no power to grant advances for anything other than a reasonable return and the proper maintenance of the property. You have no authority to give advances to create a surplus from which betterments and extensions are to be made. The surplus, in theory, is for non-revenue producing improvements, such as stations and grade eliminations."

Mr. Patterson's closing argument was a reiteration of his prior assertions on disputed points and the additional declaration that the advances asked in this case, even if granted, will not be enough, on account of the rising costs.

"Then the sky's the limit for rates," suggested Mr. McChord.

"They certainly must go up to meet rising costs," retorted Mr. Patterson.

WILLARD CHAIRMAN OF WAR INDUSTRIES BOARD

Daniel Willard, president of the Baltimore & Ohio, has been appointed by President Wilson as chairman of the War Industries Board of the Council of National Defense, succeeding Frank A. Scott, who resigned recently on account of ill-health. Mr. Willard has been chairman of the Advisory Commission of the Council of National Defense, which position he will retain. The War Industries Board was created to act as a clearing house for the war industry needs of the government, and has to deal with the important problems pertaining to the means and methods of increasing production, the sequence and relative urgency of the needs of the different government services, price factors and the general questions affecting the purchase of commodities, including the industrial and labor aspects of the problems involved. Since Mr. Scott's resignation, Judge Robert S. Lovett, who is a member of the War Industries Board, has been acting as chairman. In a statement regarding Mr. Willard's appointment, Secretary of War Baker, chairman of the Council of National Defense said:

"With the outbreak of the war, Mr. Willard was among the patriotic men who quickly volunteered their services to the government. Since that time he has unselfishly devoted his energies to the work of the Council of National Defense.

"In appointing Mr. Willard to the chairmanship of the War Industries Board the President brings to its activities the services of one who already has familiarized himself, to a large extent, with the task ahead of the board, and likewise has a general knowledge of the relations between industry and the war administration. He is an executive of well established reputation, and his selection was made in the interest of the continued efficiency and usefulness of the War Industries Board. Mr. Willard will enter upon his new duties immediately."

Big Japanese Pier Completed.—The reconstruction of the Yokohama Pier, which has been in progress for the past six years, has been completed. The pier is now 1,200 ft. long and 138 ft. wide, and the depth, alongside, which was formerly only 26 ft. at low water of spring tides, has been increased to 35 ft., providing adequate accommodation for the largest steamers engaged in the Pacific passenger trade. Two large double-storied sheds have been provided.

Traveling in England Must Be Absolute Necessity.—Replying to a deputation from the United Kingdom Commercial Travelers' Association, on October 23, Mr. Wardle said that the difficulties of the railway companies were greater than they were at the beginning of the year. Many more than 500 locomotives had been sent abroad for the purposes of the war, and some thousands were awaiting repairs here, which could not be undertaken owing to scarcity of men and shortage of materials. There had been over 160,000 men released by the railway companies for military service. Although the train services had been considerably reduced a greatly-increased traffic is being dealt with by the companies. The government would be most reluctant to place any further restrictions on traveling by railway, but the ever increasing demands on the railways may make such a step necessary unless the public willingly refrain from using the railways except in cases of absolute necessity.—*The Engineer*, London.

Street Elevation of the Northern Pacific-Great Northern Station.

Terminal Developments at Vancouver, B. C.

New Great Northern-Northern Pacific Station Completed, Canadian Northern Facilities Under Construction

WITH the completion of the Canadian Northern passenger station, upon which work was started recently at Vancouver, B. C., that city will be unusually well supplied with modern passenger terminals. The Canadian Pacific occupies a terminal completed only four years ago, while the Great Northern and the Northern Pacific have only recently commenced running trains into their new station. The newly completed freight and passenger terminal of the Great Northern and the Northern Pacific and the proposed terminal of the Canadian Northern are entirely independent projects so far as ownership, construction or operation are concerned, although the sites are adjacent and the negotiations involved in their acquisition were more or less interdependent. The layouts also bear a striking resemblance.

The new facilities center about False creek, a shallow arm of the Strait of Georgia, in the southeastern part of the city of Vancouver. The original railroad to locate in this vicinity was the Vancouver, Westminster & Yukon, which acquired a right of way on the south side of False creek on which it built a line extending westward across Main street and thence north over a trestle to a terminal fronting on Pender street.

In 1911 the Great Northern as owner of the Vancouver, Victoria & Eastern Railway & Navigation Company, the successor to the Vancouver, Westminster & Yukon, concluded an agreement with the city of Vancouver by which it obtained the title to a U-shaped area around the edges of False creek, east of Main street, leaving a basin in the center about 1,600 ft. wide and 4,500 ft. long that was reserved as public property to be developed as a basin for dock purposes. To fulfill this agreement the railroad was compelled to spend $2,500,000 for the acquisition of riparian rights from property owners around the basin, in addition it spent considerable sums in purchasing lots to secure the necessary street frontage for terminal development. The filling of the area to permit its use for railroad purposes also involved a large expenditure. Subsequent to the conclusion of this agreement the Great Northern sold a half interest in a portion of the property on the north side of False creek to the Northern Pacific and beginning January 1, 1918, the Northern Pacific will use the Great Northern (V. V. & E.) tracks from Sumas, about 60 miles southeast. The Canadian Northern also operates over these tracks under trackage rights from New Westminster to Vancouver, a distance of 12 miles.

In 1913, after the work on the Great Northern and the Northern Pacific terminal was well under way, the Canadian Northern, seeking an adequate terminal for its Pacific Coast extension in Vancouver, entered into an agreement with the city whereby it secured title to the basin surrounded by the V. V. & E. property. This made an area of 162 acres of which 127 acres were available for terminal development, the remainder being reserved for a public street and for several small park sites. In addition to filling the area for its own and the city's use, the railroad was required to extend the fill 150 ft. west of Main street to a sea wall which it was also required to construct. This feature of the project entailed an expenditure of $750,000 for the release of riparian rights. The agreement between the city and the Canadian Northern was founded on a plan of the Vancouver Harbor Commission, contemplating the future construction of a public railroad connecting the two new railway terminals with a public dock, to be located on the Kitsilan Indian Reservation. However, this project has not yet passed beyond the preliminary stages.

The Vancouver, Victoria & Eastern Terminal

The Vancouver, Victoria & Eastern terminal plan contemplates the ultimate development of the entire U-shaped area, but the improvements made thus far are restricted to the north side of the "U" with frontage on Park lane and Prior street, except for a locomotive terminal in the extreme southeast angle. The terminal as built provides a new union passenger station and coach yard, separate freight houses for the Great Northern and the Northern Pacific and a joint team yard. Each unit is designed to allow for material extension in the future and space is provided along the north side of the property for tracks to serve possible industries located along Prior street.

The passenger station occupies the south side of this portion of the property, with two main tracks leading to six station tracks and two coach cleaning and storage tracks. The future development contemplates moving the main tracks further to the south, thereby permitting the addition of five more station tracks and five additional coach yard tracks. The station tracks are arranged in pairs, spaced 12 ft. 6 in. center to center, with platform 20 ft. wide between each pair.

The station building is shaped like an L, the main building being located at the end of the station tracks, while the baggage, express and mail facilities are in a smaller wing alongside the northernmost track. The main building con-

sists of a central portion containing the waiting room 100 ft. by 60 ft., with the auxiliary facilities contained in symmetrical wings on either side. Entrance to the main waiting room is afforded by duplicate doors at each end of the street side, each of which is protected by a suitable marquis. Similar doors directly opposite, in the east wall of the waiting room, lead to the train concourse. The ticket office occupies the center of the east or track side of the waiting room. A woman's rest room and a smoking room together with toilet accommodations are located in the south wing of the building. Behind these is the immigrant waiting room, with a separate corridor leading to the train concourse and a separate street door in the south end of the building. The north wing contains a parcel and news stand, an exhibit room, a stationmaster's office and the checking counter for the baggage room. The main waiting room occupies the full height of the central portion of the building, but the two wings are arranged with second floors that are occupied as local offices by the Great Northern and the Northern Pacific.

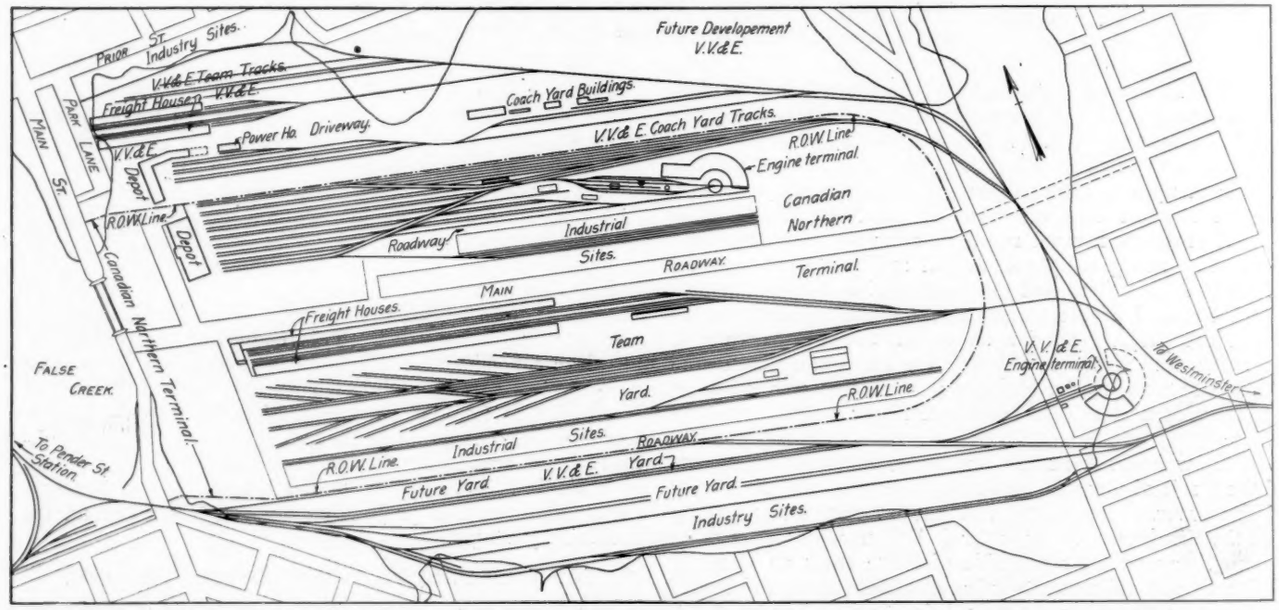
The exterior treatment is a red brick above a granite base and a terra cotta dado. Extensive use is also made of terra cotta for the trim. The main waiting room is paneled in Alaskan marble and a cast plaster ceiling. All of the floors in the building are finished with terrazo tile.

The wing north of the tracks has a width of 42 ft. and a length of 228 ft. Commencing at the west end it is occupied in turn by a baggage room 97 ft. long divided equally between general baggage and bonded baggage, a mail room 48 ft. 6 in. long and two express rooms having a combined length of 81 ft.

The main building has a reinforced concrete frame supporting reinforced concrete floors. The walls are of brick, terra cotta and hollow tile. The longitudinal wing is of ordinary brick wall construction. Owing to the fact that the structure stands on filled ground it was necessary to support it entirely on piles capped with concrete pedestals which carry the system of reinforced concrete girders that support the walls and floors.

The Freight Houses

Duplicate freight houses are provided for the Great Northern and the Northern Pacific, north of the passenger terminal. They are located on opposite sides of a grid of 6 house tracks, each house having its own driveway on the side opposite the tracks. These houses are 50 ft. wide and 600 ft. long but space is available for an ultimate extension to a maximum of 1,700 ft. A two-story portion at the west end of each of these buildings fronting on Park lane is used for office purposes. The remaining portions of the houses are divided equally into two sections by transverse fire walls, one section serving for bonded freight and the other for free goods. The storage portions of the freight houses have timber roof trusses spaced 22 ft. center to center and spanning the full 50 ft. The entire wall space between columns along the track sides of the storage portions of the freight houses is enclosed by steel roller doors; two to each 22-ft. bay, with windows and wooden sheathing in the space above the doors. The team side has one door 10 ft. wide and 9 ft. high in each bay. The freight house floors are of timber on earth filling, it being the intention to replace these floors with more permanent construction after the filling has had an opportunity to settle. The office portions of the freight houses are of ordinary brick construction with wooden floors. As in the case of the passenger station the freight houses are supported entirely on pile foundations.



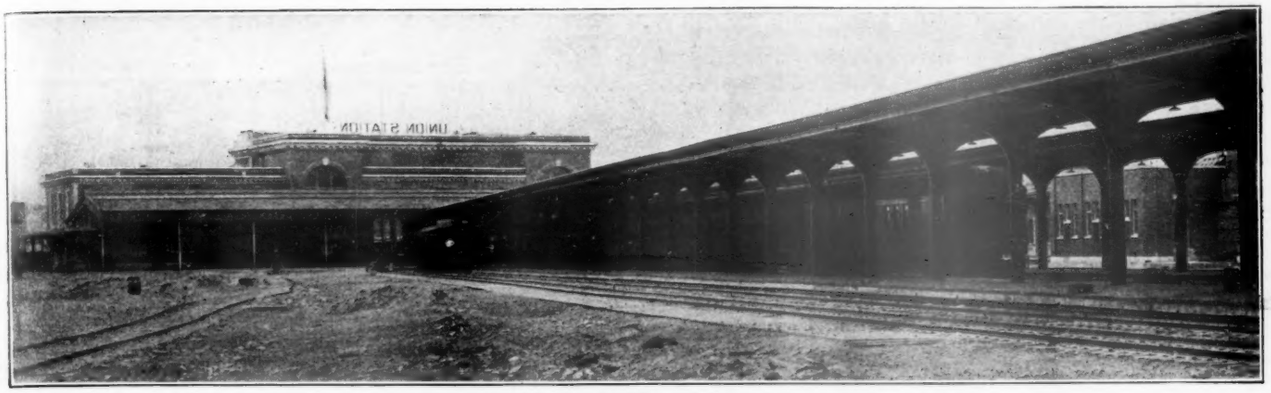
The False Creek Improvements Showing Present Development of the Vancouver, Victoria & Eastern Terminals and the Ultimate Plan of the Canadian Northern

A power plant for heating the terminal buildings is located east of the baggage building. It contains two 125-hp. return tubular boilers with space for a third boiler. The steam pipes for heating the passenger station are conducted through a 6-ft. by 6-ft. pipe tunnel.

As a large part of the area occupied by the terminals was submerged and most of the rest of it was only slightly above tide level, 2,600,000 cu. yd. of filling was required, most of which came from a pit at Sapperton, 10 miles away. A small portion of the material was secured in excavating the cut required to depress the tracks through Grand View, a section of Vancouver southeast of the terminal. The latter project involved eight street viaducts over the track, three of which were steel structures and five timber structures.

Except for a small portion done by the operating department of the Great Northern, the filling was done by A. Guthrie & Co., of St. Paul, Minn., and Portland, Ore., who used two Marion 80-ton steam shovels and 40 Kilbourne & Jacobs air-dump cars of 16-cu. yd. capacity which were operated in trains of 16 cars each. All of the terminal

buildings were built under contract by Grant Smith & Co., and McDonnell, Ltd. Fred L. Townley of Vancouver was the architect. The entire terminal project was under the direction of A. H. Hogeland, chief engineer of the Great Northern, O. S. Bowen, principal assistant engineer at Seattle, and E. B. Ford, engineer in charge.



Train Sheds of the New Union Station

The Canadian Northern Terminal

The map shows the proposed ultimate development of the Canadian Northern terminal in the basin area of False creek. The filling of the submerged land involved over 5,000,000 cu. yd. of material a large portion of which has been completed. A large sewer has also been constructed to drain the terminal property and intercept city sewers which hitherto drained into the basin. The sea wall west of Main street is nearly finished and the outbound freight house, 800 ft. long, has been completed. The contract for the passenger station has been awarded to the Northern Construction Company and Carter, Halls & Aldinger and will be completed early in 1918.

The passenger station is located in the northern half of the area not far from the Great Northern station. The plans provide for a building 321 ft. in frontage with a depth of 105 ft. at the head of a group of 16 station tracks. The design of the building is symmetrical, with a waiting room 148 ft. by 48 ft. located in the center, supported by wings on either hand containing all the necessary auxiliary facilities. Two upper floors in the wings will accommodate general offices of the railroad, but the central waiting room will have a lofty ceiling extending the full height of the structure. A passenger concourse will occupy the space between the station building and the track platforms The plans contemplate the use of high grade materials for both interior and exterior treatment, using material originating in British Columbia as far as possible. The estimated cost of the passenger station is $1,000,000. East of the station tracks the plan provides for a coach yard and passenger engine terminal.

The Main Waiting Room, Northern Pacific-Great Northern Terminal

The freight terminal occupies the center of the terminal area with a team yard in the southern portion. The freight house layout consists of an office building 100 ft. by 50 ft. and two freight warehouses,—an inbound freight house 50

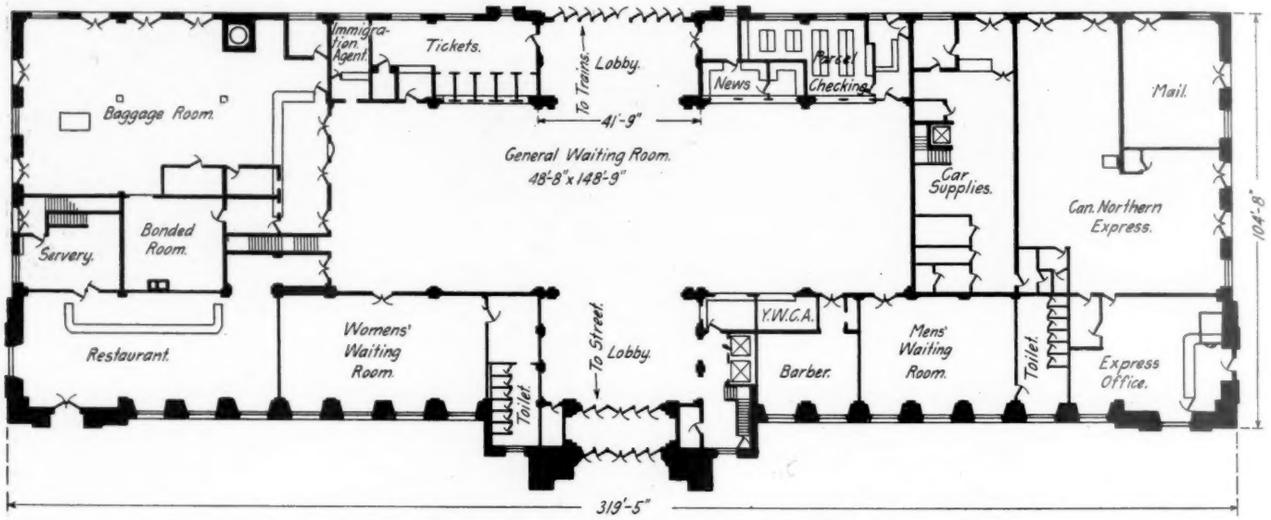
ft. wide and an outbound freight house 40 ft. wide,—with provision for an ultimate length of 1,600 ft. for each house. The freight houses are to be served by six house tracks, arranged in groups of three with a transfer platform in the center.

A section of the outbound freight house, 40 ft. by 800 ft., has been completed. This has a steel frame with steel roof trusses supporting wooden purlins which carry a 2 in. plank roof finished with tar and gravel roofing. The floors are of heavy timber construction. Along the track side of the building the doors are continuous, but on the team side they occur only in each alternate 16-ft. bay. Along the entire length of the building above the door head, continuous glazed transom lights are provided, while the wall portions consist of ⅞-in. sheathing on both sides of the studding, covered on the outside with corrugated iron. Three 13-in. brick fire walls divide the house into four compartments. A cold storage rooms is located at the east end of the building, a custom's office near the center and accommodations for the clerks and truckers at the west end of the building.

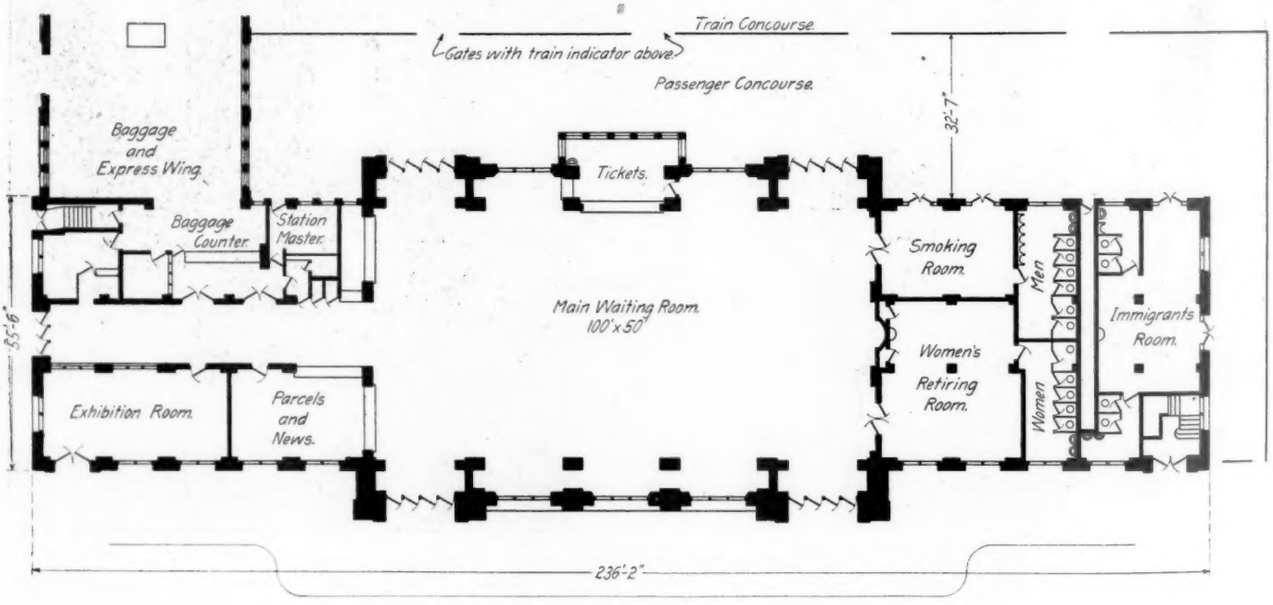
Construction Details

The terminal area required filling to an average depth of 15 ft. The bed of the basin on which this filling was placed consists of a layer of mud and under this a layer of clay, sand and gravel, overlaying hardpan. The two strata varied in thickness but had an average combined depth of about 25 ft. The fill was placed by the hydraulic method with a dredge excavating in False creek west of Main street. The output averaged about 99,000 cu. yd. per month.

The sewer formed an important part of the preliminary work. It consists of a main sewer 20 ft. by 18 ft., 4,400 ft. long with laterals of smaller size having an aggregate length of 6,600 ft. Owing to the soft foundation and the presence of the fresh filling material, it was concluded to be unwise to use anything but timber construction for the



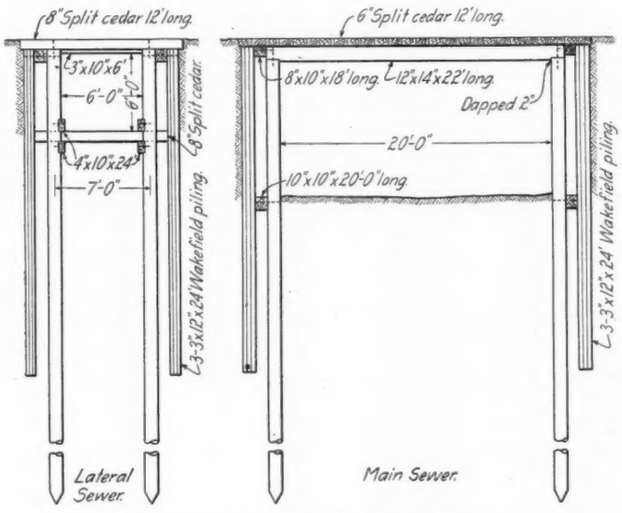
Plan of the Canadian Northern Station



Plan of the New Union Station

sewer, it being the intention to replace this with a more permanent form of construction when the timber sewer requires renewal because of the action of decay or marine borers. The details of the main and lateral sewers are shown in the sketch. The sides consist of Wakefield sheet piling composed of 3-ply, 3-in. by 12-in. timbers with a roof consisting of 6 in. split cedar spanning longitudinally across 12-in. by 14-in. beams supported at intervals of 6 ft. on two rows of piles driven just inside of the sheet piling. The construction of the lateral sewer is somewhat simpler. The roofs of the sewers were left off until they were completed so that they could be cleaned out by means of a clam shell bucket to remove sediment deposited by the return flow of the water from the hydraulic filling. All buildings constructed in the terminal area will be placed on pile foundations, 2,500 piles being required for the passenger station structure alone.

One of the most interesting features of the work is the sea wall west of Main street. This consists of a dock formed by a reinforced concrete slab having a total length of 1,045 ft. This slab is supported along the water side



Section of Canadian Northern Sewers

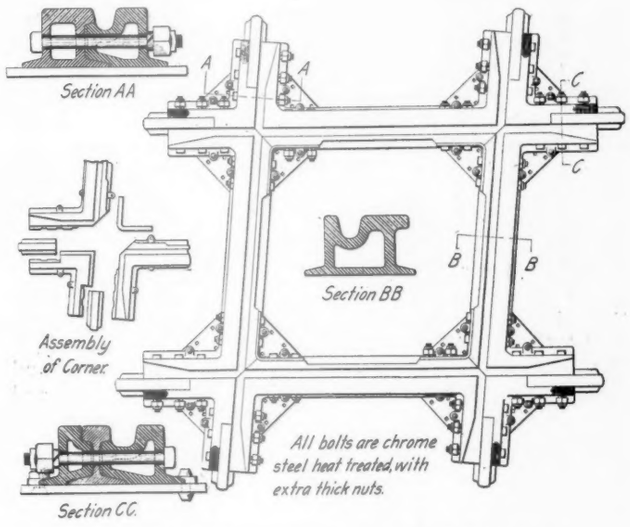
on a longitudinal concrete girder carried on a row of reinforced concrete piles. Along the land side, the slab is supported on the top of a reinforced concrete retaining wall of the counterfort type. The wall is protected along the water edge by a fender consisting of a heavy timber supported on a row of creosoted piling. The counterfort retaining wall is on timber pile foundation. The construction of this wall entailed the use of 4,800 cu. yd. of concrete, 407,000 lb. of reinforcing steel, 535 concrete piles of a total length of 12,015 ft. and 13,200 lin. ft. of creosoted piles.

The Canadian Northern terminal work at Vancouver is under the general direction of M. H. MacLeod, general manager and chief engineer, Winnipeg, Man., with H. A. Dixon, division engineer, Vancouver, in direct charge. Pratt & Ross of Winnipeg and Vancouver are the architects for all of the buildings. McDonald, Nettleson & Bruce were the contractors for the freight house, A. G. Creelman was the contractor for the sea wall and the Pacific Dredging Company did the hydraulic filling. The sewer work was done by the Canadian Northern Construction Company.

SPECIAL WAR COURSES AT CORNELL.—The College of Civil Engineering of Cornell University is offering six special war courses, two of which are on Military Transportation and Military Construction.

A SECTIONAL MANGANESE CROSSING

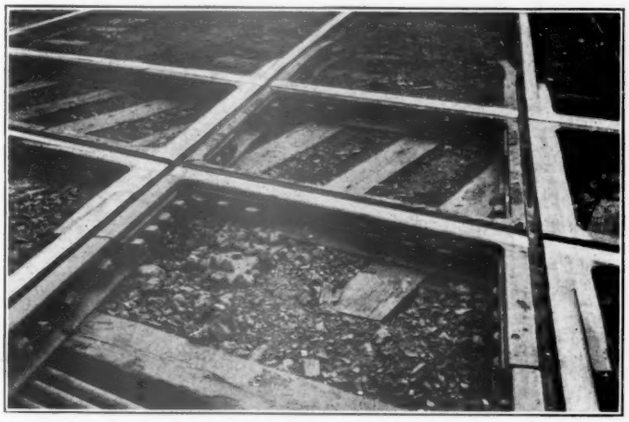
Manganese construction has been used in crossings subjected to heavy traffic for a sufficient length of time to demonstrate the high resistance of this metal to wear and its economy under ordinary conditions. Where difficulty has been encountered it has in nearly all cases been from breakage which usually starts at the intersection of the flangeways. This difficulty has been recognized in the development of a new design of crossing by Stephen Balkwill, of



Plan and Sections of an Articulated Crossing

the Balkwill Manganese Crossing Company, Cleveland, Ohio, which is manufactured under license by the Pettibone-Mulliken Company, Chicago. This type of crossing is built in eight sections with the joints along its lines of heaviest stress and ultimate breakage in the flange-ways. With this construction the sections are free to move slightly with reference to each other under traffic and the stresses encountered in crossings of solid construction are avoided.

The crossing consists of four side pieces each of which



Crossing of the Erie and Pennsylvania Lines at Cleveland

forms a tread, flange-way and guard rail of one of the four sides of the crossing as well as the guard rails of two of the exterior arms. There are also four corner pieces which form the tread portions of the exterior arms. These eight parts are held in place by bolts with the addition of knees to connect the side sections at the corners. The joints between the four side sections are mitred and terminate in the flange-

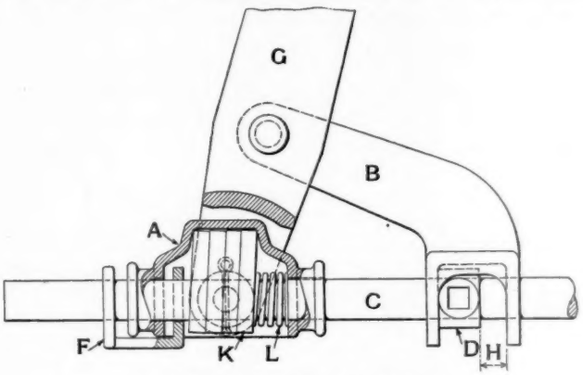
way at the groove intersections while the joint between the two parts forming each exterior arm is in the flange-way. The main advantage of this type of crossing is that it allows a certain amount of flexibility at the corners and that, since the joints occur at these points, opportunity for cracks is eliminated. Because of the smaller unit in which the manganese is cast it is possible to secure sounder and more thoroughly treated castings; and the wings are so designed that a rigid connection may be made with the running rails without need for a separate splice bar of any kind.

Crossings of this type have been in service at a number of points for intervals up to two and one half years. One of the earliest installations was in the crossing of the New York Central main line and a branch of the Baltimore & Ohio carrying heavy ore and coal traffic at Painesville, Ohio, which has been in the track for more than two years. Based upon the service of this original crossing another one was installed in the New York Central east bound high speed track at the same point about three months ago. A crossing of this type has been in track at the intersection of the Hocking Valley and the Baltimore & Ohio at Fostoria, Ohio, since November, 1916. Others are in service at crossings of the Erie and the Pennsylvania at Cleveland, the Illinois Central and the Chicago & Western Indiana at Chicago, the St. Charles Air Line with the Rock Island and the New York Central at Chicago, the Elgin, Joliet & Eastern and the Chicago, Milwaukee & St. Paul at Spaulding, Ill., and at crossings of the Rock Island with the Santa Fe and the Alton at Joliet.

TRUCK LEVER TYPE SLACK ADJUSTER FOR FREIGHT CARS

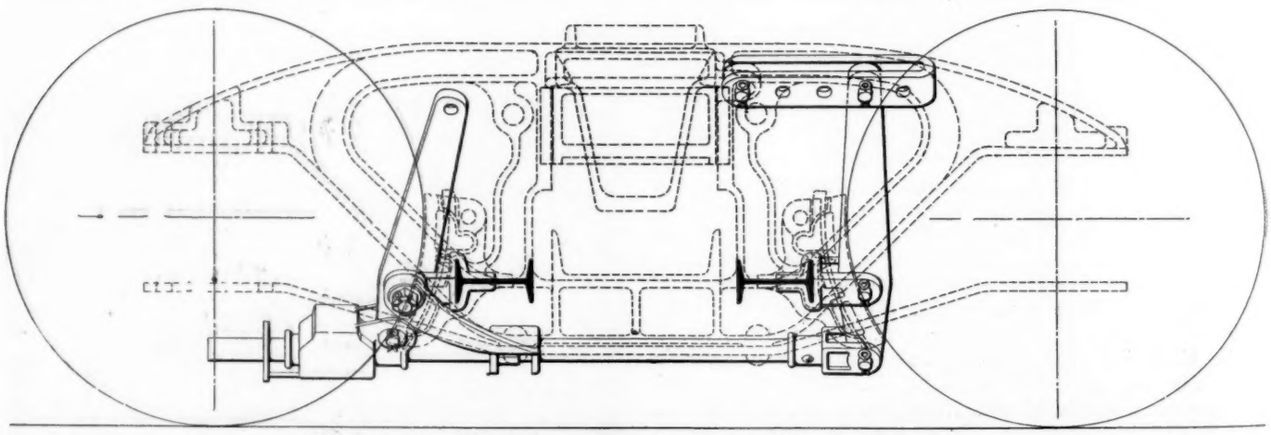
A description of an automatic slack adjuster for freight cars which was developed by the Gould Coupler Company, New York, appeared in the *Daily Railway Age Gazette* of June 14, 1916, page 1263. This slack adjuster replaced the push rod in the truck brake rigging, performing the functions of the latter, as well as that of the slack adjuster. The function of the push rod was performed by two members, one of which telescoped within the other. In the barrel, or hollow member, was a pocket containing two friction grip dogs through which passed the solid, or push rod member, the normal position of the dogs at an angle of four or five degrees from a line at right angles to the center line of the push rod preventing the latter from telescoping, but permitting its movement freely in the other direction to lengthen the connection between the lower ends of the live and dead levers. An adjusting rod attached to the brake beam, fulcrum pin of the live lever, provided with a friction sleeve operating between two lugs on the side of the barrel member of the slack adjuster, automatically caused the lengthening of the push rod members on the release of the brakes to maintain a constant clearance between the brake shoes and the wheels.

The drawing shows the application of the same principle in a device, since developed by the Gould Coupler Company, which has been materially altered and much simplified in construction. The slack adjuster proper is attached directly to the lower end of the live lever and through it passes the push rod which in this case is in one piece. The friction sleeve is mounted directly on the push rod and the adjusting rod employed in the original device has been replaced by an adjusting bracket attached to the live lever at the same location, but provided with a housing at the other end which slides on the push rod and contains the friction clamp.



Details of the Slack Adjuster

The operation of the slack adjuster may be made clear by referring to the sectional drawing showing the arrangement of the details. It will be seen that the slack adjuster body *A*, containing four clamping dogs *K* is mounted on the push rod *C*, the lower end of the live lever *G* being connected directly to the body *A*. The spring *L* normally holds the dogs *K* in an oblique position in which they grip the push rod and prevent any movement of the adjuster along the rod toward the right. The friction clamp sleeve *D* may be moved along the push rod, but considerable pressure is required to move it.



Universal Truck Lever Type Automatic Slack Adjuster

The device as shown in the drawing is in release position. An application of the brake causes the upper end of live lever *G* to move to the left, carrying with it its brake beam and brake shoes until the latter bear against the wheel treads. Further movement then causes the push rod *C* to be moved to the right, applying the brake shoes to the other pair of wheels. The distance *H* between the friction clamp and the right hand shoulder of the adjusting bracket *B* is just sufficient to permit the angular movement of the live lever relative to the push rod required to take up the normal amount of clearance between the brake shoes and the wheel treads.

Any increase in this clearance due to brake shoe wear

causes the shoulder of the adjusting bracket to move the friction clamp along the push rod toward the left. On the release of the brake, the parts again assume the position shown in the drawing, the left hand shoulder of the adjusting bracket striking the friction clamp *D* and, if the latter has been moved to the left in the preceding brake application, causing the push rod *C* to move to the right through the slack adjuster jaw by the same amount. The slack will thus be taken up and only a normal amount of movement of the parts will take place at the next application of the air brake.

When the brake shoes are renewed it becomes necessary to let out the slack. To do this, the release handle *F* is first moved to the right, thus unlocking the dogs *K* and permitting the push rod *C* to move to the left. The friction clamp *D* is forced to the right until it strikes the right hand jaw of the adjusting bracket, this operation being repeated until the brake beams are far enough off the wheel to renew the brake shoes. The proper adjustment of brake shoe clearance will automatically be effected on the first application of the brake.

TRAIN ACCIDENTS IN OCTOBER

The following is a list of the most notable train accidents that occurred on the railways of the United States in the month of October, 1917:

Collisions

Date	Road	Place	Kind of accident	Kind of train	Kil'd	Inj'd
8.	N.Y.C.: N.Y.C.&St.L.	Dunkirk.	xc	F. & F.	1	2
8.	Pennsylvania	New Galilee.	bc	P. & F.	1	9
†17.	Piedmont & Nor.	Spartanburg.	rc	P. & P.	3	43
19.	Cumb. Valley	Winchester.	bc	P. & F.	1	1
21.	Southern	Larmond.	xc	P. & P.	2	0
28.	Balt. & Ohio	Elsmere.	rc	F. & F.	2	0

Derailments

Date	Road	Place	Cause of derailment	Kind of train	Kil'd	Inj'd
3.	Wabash	Toledo.	b. rail	P.	0	7
5.	Central Vermont	Williamstown.	unx	P.	0	3
11.	Pennsylvania	Horseshoe Curve	d. eq.	F.	0	0
13.	Phil. & Reading	Joanna.	unx	P.	1	1
23.	Central Ga.	Sidney.	unx	P.	1	3
23.	Chicago & N. W.	Northfield.	acc. obst.	P.	2	0
*27.	Kansas C. Sou.	Nederland.	unx	F.	0	0
28.	St. Louis-S. F.	Brush Creek.	unx	P.	0	12
31.	Wabash	Ballou.	b. rail	P.	0	17
31.	Central Ga.	Juniper.	b. rail	P.	0	34

Other Accidents

Date	Road	Place	Cause of accident	Kind of train	Kil'd	Inj'd
16.	Atchison, T. & S. F.	Orsa, Col.	boiler	F.	3	1
*28.	Erie	Rathbone.	fire	P.	..	..

The trains in collision at Dunkirk, N. Y., on the night of the 8th, were a northbound freight of the New York Central and an eastbound freight of the New York, Chicago & St. Louis. The New York Central engine was ditched and the track of the Pennsylvania Railroad was obstructed. The engineman, fireman, and one brakeman were injured, the brakeman fatally. The New York Central train had approached the crossing at uncontrollable speed, the engineman having evidently misjudged the distance in which he could bring the train to a stop.

The trains in collision on the Pennsylvania Lines at New Galilee, Pa., on the 8th, were eastbound passenger No. 2, the Pennsylvania Limited, and a westbound freight. Both of the engines, the leading car in the passenger train and seven cars in the freight train were badly damaged. One trainman was fatally injured and six employees and three passengers were slightly injured. The freight train was moving westward on the eastbound freight track, under manual block-system regulations; but the signalman at the west end of the block neglected to protect the movement and erroneously set up the interlocking so as to divert the passenger train from the eastbound passenger track to the eastbound freight track.

The trains in collision on the Piedmont & Northern near Spartanburg, S. C., on the evening of the 17th, were a northbound passenger, consisting of three electric cars, and a following worktrain drawn by a steam locomotive. Both trains were crowded with passengers, mostly soldiers from Camp Wadsworth. The electric train had been stopped by reason of some trouble with or failure of the electric current, and, it is said, there were no tail lights displayed. Two civilians and one soldier were killed and 43 persons were injured. One of the killed was riding on the pilot of the engine of the worktrain, this because of the crowded condition of the cars. The engineman of the worktrain was arrested by the military police.

The trains in collision at Winchester, Va., on the night of the 19th, were a southbound passenger and a northbound freight which was switching and which fouled the main track. The locomotive of the passenger train was ditched and the fireman was killed. The engineman was slightly injured. The cause of the collision appears to have been the carelessness of the runner of the freight engine, who

[1]Abbreviations and marks used in Accident List:

rc, Rear collision——bc, Butting collision——xc, Other collisions——b, Broken——d, Defective——unf, Unforeseen obstruction——unx, Unexplained——derail, Open derailing switch——ms, Misplaced switch——acc. obst., Accidental obstruction——malice, Malicious obstruction of track, etc. ——boiler, Explosion of locomotive on road——fire, Cars burned while running——P. or Pass., Passenger train——F. or Ft., Freight train (including empty engines, work trains, etc.)——Asterisk, Wreck wholly or partly destroyed by fire——Dagger, One or more passengers killed.

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Railroad Puts an End to Marching. It Used to Be "Fall In," and Then a Long Weary March to the Trenches. But Now It Is "At Ease" and the Tommies Tumble on the Trains and Are Carried to the Front Lines

said that he thought he was fouling, not the main track, but another one, parallel to it.

The trains in collision at Larmond, Va., on the 21st, were both southbound passenger, a local train on a side track moving toward the main line striking the side of an express train which was passing at full speed. The engineman and fireman of the express were fatally injured.

The train derailed near Toledo, Ohio, on the night of the third, was eastbound passenger No. 58. The engine and first three cars were ditched and 7 passengers were injured. The cause of the derailment was a broken rail.

The train derailed near Williamstown, Vt., on the 5th was a southbound local passenger. One car was overturned and two passengers and one trainman were injured.

The train derailed on the Pennsylvania Railroad at the Horseshoe Curve, near Gallitzin, Pa., on the 11th, was an eastbound freight. The locomotive and 14 loaded cars were wrecked and four main tracks were blocked. The derailment was caused by the spring equalizer between No. 1 and No. 2 driving wheels, right side of engine, interfering with guide yoke bolt.

The train derailed near Joanna, Pa., on the 13th, was a northbound passenger. The locomotive was overturned and the engineman was killed. The fireman was injured.

The train derailed near Sidney, Ga., on the 23rd, was northbound passenger No. 13. While running at about 25 miles an hour the locomotive ran off the track and was overturned, and the engineman was killed. The fireman and two other trainmen were injured.

The train derailed at Northfield, Ill., on the 23rd, was southbound passenger No. 102. The engine was overturned and the smoking car was ditched. The engineman and fireman were killed. The derailment was caused by something on the engine dropping down and catching a road crossing plank, which plank was carried along to an adjacent switch, wedging in the point of the switch in such a manner as to cause the derailment of the engine and the six following cars.

The train derailed near Nederland, Tex., on the 27th, was southbound freight No. 51. Ten cars in the middle of the train were derailed; seven of them contained oil and the wreck took fire, presumably from friction of metals, and the derailed cars were ruined. The cause of the derailment was not determined; but the train is believed to have been running at excessive speed.

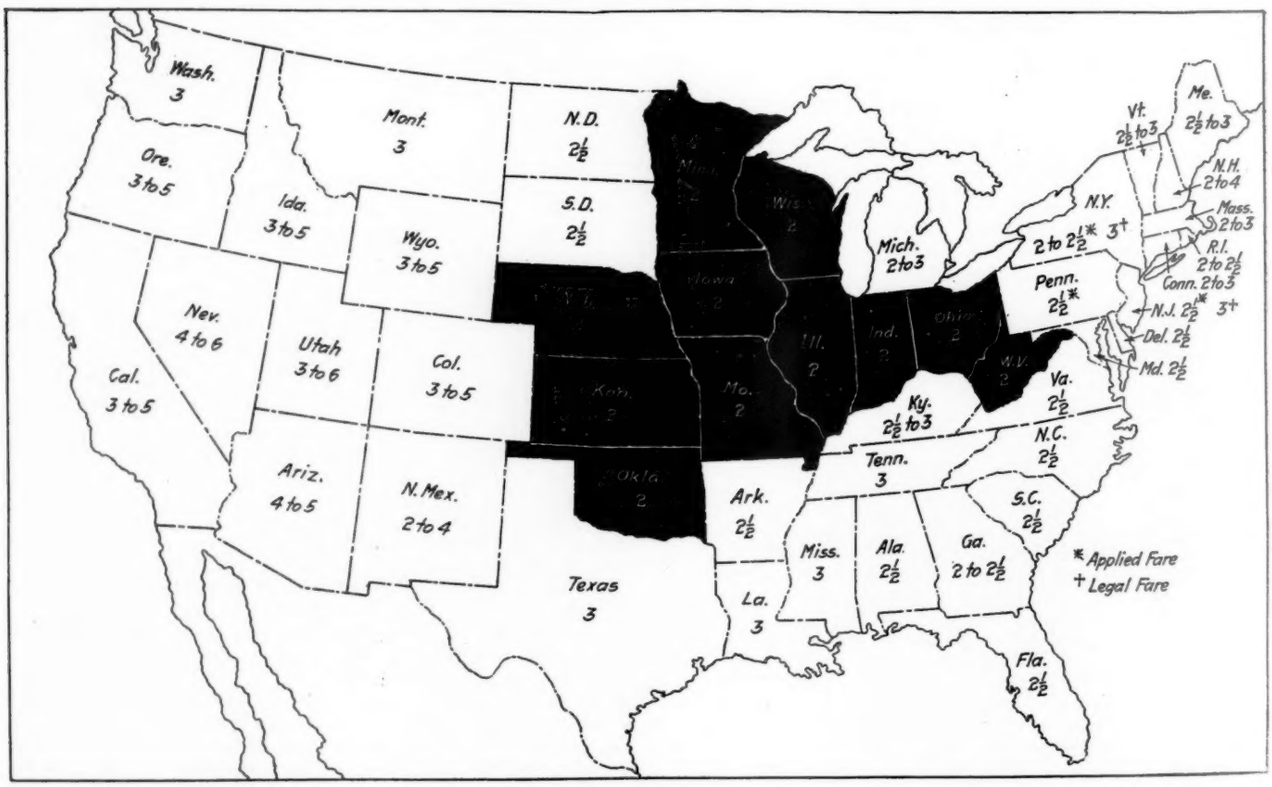
The train derailed at Brush Creek, Mo., on the 28th, was an eastbound special carrying soldiers. Five cars fell down a bank and twelve passengers were injured, none seriously.

The train derailed near Ballou, Ill., on the 31st, was southbound passenger No. 11. Fifteen passengers and two trainmen were injured. The cause of the derailment was a broken rail.

The train derailed at Juniper, Ga., on the night of the 31st, was eastbound passenger No. 4. Three passenger cars were overturned and 34 passengers were injured. The cause of the derailment was a broken rail.

The train involved in the accident near Orsa, Col., on the 16th, was an eastbound freight. The locomotive was wrecked by the explosion of its boiler. Three employees were killed and one was injured. The cause of the explosion was low water.

The train involved in the accident near Rathbone, N. Y., on the 28th about 3 a. m., was an eastbound special passenger carrying troops. Fire, originating in a cook car, destroyed that car and one sleeping car together with some of the passengers' baggage. The flames spread rapidly and some of the passengers are said to have jumped out of the windows. The loss of property was estimated at $60,000.



Slacker States

This map, which was prepared by the American Association of Passenger Traffic Managers at the suggestion of Frank Trumbull, chairman of the Railway Executives Advisory Committee, shows the passenger fares per mile permitted by each state on intrastate business. We have called the area shown in black slacker states; they are putting the burden of unprofitable passenger service on the rest of the country.

General News Department

Employees of the Los Angeles & Salt Lake took second Liberty Loan bonds to the amount of $146,550.

The Denver & Rio Grande has granted an increase in wages of three cents an hour to machinists, boilermakers, blacksmiths and sheet metal workers employed on its lines in Utah.

Judge Chambers, the government mediator, has been informed that wage differences which threatened a walkout of enginemen and firemen on the New York, New Haven & Hartford have just been referred to arbitration through an agreement reached by the two sides. The management of the St. Louis-San Francisco has notified the railroads' war board of its willingness to meet certain employees for a discussion of grievances over working conditions.

At the Sheepshead Bay track, New York City, November 16, Ralph De Palma, driving a Packard automobile, fitted with a Liberty motor, traversed a distance of 633.12 miles in six hours, or at the rate of 105.6 miles an hour. The best preceding record was made at the Brooklands bowl-shaped track in England four years ago: 566 miles in the same time. De Palma traveled 113 miles in the first hour. The Brooklands record was made by three men driving alternately.

The Boston & Maine has made advances of 40 cents a day in the pay of station agents, freight-house men, clerks and other station employees, and of 30 cents a day in that of crossing tenders. These increases were fixed by Henry B. Endicott, arbitrator. The men had asked for 75 cents increase. On their request for an eight-hour day, Mr. Endicott says:

"It was agreed that in view of the present crisis in which this nation finds itself involved at the present time, it is unpatriotic to raise an issue at this time."

The United States Civil Service Commission announces an open competitive examination for telegraph rate experts, for men only. Vacancies in the office of the United States food administrator at $117 a month and in positions requiring similar qualifications at this or higher, or lower salaries, will be filled from the examination. The duties of appointees will consist of the revision, preparation, audit and payment of telegraph cable accounts. Applicants should apply to the Civil Service Commission, Washington, D. C., at once, for Form 1312, stating the title of the examination desired. Applications must be properly executed, excluding the medical certificate and filed with the commission at Washington prior to the hour of closing business on December 4, 1917.

It is estimated that the saving of meat in dining cars and railroad restaurants by not serving meat on Tuesdays now equals an average of over 85,000 lb. annually or a money value of $250,000. This estimate is based on reports made by 41 railroads, represented at a recent meeting at Chicago of the American Association of Dining Car Superintendents. "Meatless Tuesdays" and "Wheatless Wednesdays" are being strictly observed now on nearly every railroad. The only possible exception will be the serving of meat on Tuesday to troops in transit. The question of whether that shall be done has been referred by the dining car superintendents to the Federal Food Administration. Some railroads have eliminated roast beef from their bills of fare every day and are serving steaks or beef only at the evening meal. All lines reported that the traveling public has evinced hearty sympathy with the conservation policy.

The United States Civil Service Commission announces examinations for inspector of car equipment, for the valuation division of the Interstate Commerce Commission for duty in the eastern district at entrance salaries not exceeding $1,500. Future vacancies requiring similar qualifications occurring in any district will be filled from this examination. Applicants must have at least three years' experience in the employ of a railroad in the department of equipment or with a car manufacturing company, or have graduated in mechanical engineering from a technical school of recognized standing and have had one year of such experience. Competitors will be rated on the following subjects, which will have the relative weight indicated on a scale of 100: Physical ability, 10; experience, 90. Applicants should apply at once to the United States Civil Service Commission, Washington, D. C., for Form 1312, stating the title of the examination desired. Applications, excluding medical certificates, must be filed with the Commission at Washington prior to December 11.

Census of Railroad Employees in Government Service

The Railroads' War Board, for the purpose of obtaining exact information as to the labor situation and of showing what contributions the railroads have made to the public service, has arranged for taking a census of railroad employees in the United States service or of draft age. A circular has been despatched to the railroads with blank forms prepared to show the number of employees who have entered the service of the government, by enlistment, as civilians, or by draft, and those at present in the railway employ who are of draft age. The forms are designed to indicate the character of service and the compilation will embrace all employees. The data which will thus be furnished by the railroads to the war board will not only show the extent of the contribution already made by the roads, but will also give an approximate idea of the extent to which railroad forces are likely to be further depleted and will lay a foundation for the designation of workers when the time arrives for this course to be taken.

Wage Question in Hands of President

The Railroads' War Board, following a conference with W. L. Chambers, chairman of the United States Board of Mediation and Conciliation, on Monday, November 19, regarding the situation created by the wage demands of the Order of Railway Conductors and the Brotherhood of Railroad Trainmen, agreed to place the interests of the railroads in the event of a crisis, unreservedly in the hands of the President for protection and for disposition as he may determine in the public interest. The entire situation was discussed by Judge Chambers and the members of the war board, who reiterated the position taken by the railroads during the eight-hour day controversy, that such matters should be settled by arbitration. They were willing, therefore, to place the entire matter in the hands of the President because of the unusual conditions created by the war, which make it more than ever imperative that there shall be no interruption of traffic. The President was to confer with the officers of the brotherhoods on Thursday. The position of the carriers was stated, after the conference, in a letter to Judge Chambers sent by Chairman Fairfax Harrison to be transmitted to the President. Mr. Harrison's letter is as follows:

"We confirm what we said to you this morning in reply to your inquiry as to what will be the attitude of the railroads with respect to the manner of settlement of any demands for increases in pay or changes in working conditions which during the war may be made upon them by employees.

"Speaking for the railroads today, we reiterate our belief in, and general acceptance of, the principle of arbitration. In the midst of war we are, however, prepared to go further. As no interruption of continual railroad operation can be tolerated under war conditions, we are ready, should any crisis now arise, unreservedly to place our interests in the hands of the President for protection, and for disposition as he may determine is necessary in the public interest."

Judge Chambers expressed the opinion that this action would remove the possibility of a strike, saying that while the brotherhood leaders have been unwilling to agree to arbitration, they have agreed that there shall be no definite action pending the consideration of all facts of the situation by the President and by the Board of Mediation and Conciliation.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF SEPTEMBER, 1917

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Ann Arbor	293	$179,738	$56,254	$256,945	$28,115	$39,092	$5,875	$110,309	$9,849	$193,968	75.49	$62,976	$13,100	$49,867	—$16,552
Arizona Eastern	377	196,717	53,185	280,714	38,660	36,160	2,759	67,964	14,870	166,762	59.41	113,951	63,643	50,307	—81,057
Atlanta & West Point	93	83,828	59,885	163,373	14,105	23,059	5,657	51,333	4,746	101,450	62.10	61,923	19,000	42,921	1,230
Atlanta, Birmingham & Atlantic	640	227,207	69,553	322,750	516,619	57,258	14,462	139,401	9,215	269,875	83.62	52,875	13,700	39,169	—20,964
Baltimore & Ohio	4,937	9,430,315	2,149,446	12,681,070	1,423,641	2,220,066	185,132	5,053,428	276,892	9,240,567	72.87	3,440,503	351,880	3,087,804	128,648
Belt Ry. Co. of Chicago	31	.....	.....	342,529	23,144	45,153	1,392	136,753	7,292	213,736	62.40	128,792	14,350	114,442	—12,790
Bingham & Garfield	36	285,252	4,274	293,976	25,675	32,811	1,183	39,729	3,695	103,151	35.09	190,825	22,642	168,182	—31,050
Canadian Pacific Lines in Maine	233	92,327	33,791	136,005	50,688	24,474	5,981	59,059	4,168	144,371	106.15	—8,365	13,500	—21,865	32,031
Carolina, Clinchfield & Ohio	283	298,045	30,352	335,485	35,445	57,993	16,709	81,309	13,389	204,580	60.98	130,904	13,400	117,498	4,360
Carolina, Clinchfield & Ohio of S. C.	17	16,356	2,079	18,945	1,428	111	2,640	5,123	1,541	10,845	57.24	8,100	600	7,500	—2,066,380
Chicago, Burlington & Quincy	9,373	6,917,774	2,451,324	10,295,234	1,150,191	1,674,006	138,706	3,419,576	244,218	6,731,819	65.39	3,563,415	1,288,621	2,274,793	—2,797
Chicago, Indianapolis & Louisville	654	507,862	231,689	805,405	79,403	150,455	24,345	268,400	19,812	543,168	67.44	262,237	37,704	224,491	—31,224
Cincinnati, Ind. & Western	321	134,091	62,482	217,227	24,834	41,086	7,829	86,916	7,066	168,096	77.38	49,131	12,166	36,965	310,423
Colorado & Southern	1,102	660,466	215,893	937,605	80,368	163,770	10,079	270,234	26,719	557,096	59.42	380,508	103,000	277,521	—5,053
Colorado & Wyoming	42	31,670	2,563	95,547	6,961	13,139	123	30,949	3,850	55,024	57.59	40,523	4,100	36,423	—13,483
Cripple Creek & Colorado Springs	86	76,319	16,442	95,436	10,362	7,630	2,728	22,575	3,088	50,066	52.46	45,370	4,107	41,262	79,394
Delaware, Lack. & Western	955	3,414,595	933,883	4,926,045	387,588	715,574	72,314	1,789,395	93,172	3,104,496	63.02	1,821,549	261,866	1,559,558	—181,657
Denver & Rio Grande	2,588	1,900,084	507,680	2,585,692	330,809	409,276	40,686	829,720	86,740	1,733,813	67.05	851,879	110,000	741,835	—36,210
Denver & Salt Lake	255	149,923	36,271	194,450	30,964	36,674	1,342	84,869	3,663	157,513	81.00	36,937	8,250	28,687	—14,490
Detroit and Mackinac	385	73,737	31,805	115,754	15,536	21,452	4,128	45,415	3,630	90,447	78.14	25,309	9,178	16,131	—24,031
Detroit & Toledo Shore Line	80	125,645	.....	127,082	6,773	13,759	2,660	40,909	3,466	67,569	53.17	59,513	7,000	52,513	—17,559
Detroit, Grand Haven & Milwaukee	190	171,000	50,000	268,752	52,116	52,107	6,350	162,085	6,976	279,636	104.05	—10,884	3,620	—14,591	—21,665
Detroit, Toledo & Ironton	441	220,247	16,721	260,941	33,878	44,740	4,276	131,124	8,952	222,973	85.45	37,967	8,000	29,964	—12,813
Duluth, South Shore & Atlantic	601	240,292	110,111	383,124	62,932	50,737	8,156	160,166	10,870	297,303	77.60	85,820	19,500	66,320	—24,456
Duluth, Winnipeg & Pacific	175	124,361	21,026	150,014	22,478	21,963	2,638	68,669	10,757	127,634	85.08	22,379	7,500	14,879	—179,647
El Paso & Southwestern Co	1,028	757,575	189,324	1,005,591	94,393	119,998	21,328	272,552	28,082	544,599	54.16	460,992	38,643	422,301	—504,519
Erie	1,987	4,624,443	915,387	6,181,140	756,653	1,438,495	103,603	2,710,040	130,994	5,182,043	83.84	999,097	224,485	772,564	—8,197
Ft. Worth & Denver City	454	357,666	169,140	558,589	38,028	91,138	7,491	155,425	16,695	312,385	55.92	246,203	74,500	171,695	—297,568
Galveston, Harrisburg & San Antonio	1,360	1,290,133	385,959	1,807,943	173,243	181,384	35,526	537,718	39,163	978,163	54.10	829,779	397,324	429,182	—859,067
Great Northern	8,260	6,007,869	1,622,702	8,382,072	951,351	951,037	110,781	2,844,470	134,958	5,058,586	60.35	3,323,486	696,380	2,626,451	—17,350
Gulf & Ship Island	307	170,462	51,446	234,995	30,593	29,419	3,288	64,288	8,399	136,183	57.95	98,812	24,858	73,952	—64,144
Gulf, Colorado & Santa Fe	1,937	1,088,382	379,185	1,568,385	264,752	201,425	27,878	461,667	52,686	1,006,255	64.16	562,130	87,314	474,206	—18,095
Gulf, Mobile & Northern	402	177,353	32,424	218,139	23,878	37,022	4,574	63,352	8,117	136,949	62.78	81,190	8,825	72,363	—37,729
Houston East & West Texas	190	112,020	37,374	160,780	20,448	15,759	2,118	54,756	3,487	96,567	60.06	64,212	55,708	7,769	—109,592
Houston & Texas Central	948	548,233	179,381	772,906	80,461	72,419	17,614	226,239	19,479	416,197	53.85	356,709	91,763	263,394	—20,289
International & Great Northern	1,160	730,662	354,910	1,158,776	103,894	190,031	23,749	411,043	32,215	759,773	65.57	399,003	23,000	375,937	—11,368
Kansas City, Mexico & Orient	272	80,815	11,653	97,852	16,705	17,829	4,577	45,532	6,021	90,664	92.65	7,189	6,019	1,170	128,932
Kansas City Southern	755	859,539	189,605	1,135,795	98,269	175,969	28,343	335,205	31,773	668,170	58.83	467,625	50,659	416,590	—109
Kansas City Terminal Co	23	.....	.....	91,304	9,793	14,266	.....	33,371	1,302	59,082	64.71	32,221	18,536	13,682	25,266
Lehigh & Hudson River	96	173,310	5,319	196,486	17,323	35,829	1,451	62,483	4,566	121,654	61.91	74,831	5,600	69,231	—1,700
Lehigh & New England	296	317,094	1,138	331,267	37,084	46,836	2,677	102,453	9,324	198,358	59.88	132,909	32,750	100,159	—230,661
Lehigh Valley	1,442	3,252,687	519,751	4,703,998	561,881	810,530	79,526	2,071,605	89,801	3,631,363	77.20	1,072,635	218,181	854,229	236,710
Long Island	397	456,496	1,286,492	1,910,499	154,158	156,914	10,750	700,557	37,368	1,067,423	55.87	843,075	79,081	763,681	—60,164
Los Angeles & Salt Lake	1,153	643,630	275,335	1,008,777	95,718	145,377	32,463	303,354	22,125	614,908	60.96	393,868	60,246	333,617	26,454
Louisiana & Arkansas	302	115,809	24,644	147,083	22,628	22,322	3,485	42,271	4,638	94,811	64.46	52,272	10,446	41,825	23,985
Louisiana Ry. & Navigation Co	342	173,086	56,365	242,028	23,674	29,378	6,895	83,055	5,875	148,879	61.51	93,148	19,192	73,889	—126,638
Louisiana Western	207	214,682	78,046	313,378	18,801	28,516	7,990	69,280	8,460	134,923	43.05	178,455	193,620	—15,240	—258,698
Michigan Central	1,861	2,684,540	1,291,433	4,516,101	595,975	638,369	75,613	1,754,345	76,131	3,216,331	71.22	1,299,769	220,000	1,079,524	—6,501
Mineral Range	120	92,847	3,208	99,031	17,131	16,126	450	50,721	1,755	86,185	87.03	12,846	3,000	9,846	—43,948
Minn. & St. Louis	1,646	763,671	218,790	1,042,066	159,501	117,053	18,131	405,684	24,454	724,843	69.56	317,222	44,294	272,579	2,772
Missouri, Kansas & Texas System	3,868	2,291,337	1,186,650	3,763,448	427,500	807,946	63,072	1,321,825	110,989	2,759,715	73.33	1,003,733	243,729	759,494	—6,061
Missouri, Oklahoma & Gulf	332	106,962	29,298	143,991	19,979	26,233	3,635	60,558	7,182	117,680	81.73	26,310	9,340	16,567	22,777
Morgans La. & Texas R. R. & S. S. Co	400	426,692	122,345	584,346	60,224	47,578	11,920	166,865	14,412	303,337	51.91	281,008	131,718	149,048	19,520
Nevada Northern	165	195,730	17,516	219,626	19,231	25,828	728	37,695	5,552	89,117	40.58	130,509	10,398	120,110	9,481
New Orleans, Texas & Mexico	191	86,467	21,568	111,054	16,768	15,480	2,815	28,915	6,117	70,096	63.12	40,958	1,400	39,527	—1,387,306
New York Central	6,082	12,844,426	5,420,030	21,342,154	2,450,914	3,596,624	303,273	7,693,910	438,978	14,772,881	69.22	6,569,273	1,126,345	5,441,969	—22,315
New York, Susquehanna & Western	135	194,361	53,706	276,701	34,170	36,148	2,010	152,080	5,853	230,247	83.21	46,454	16,166	30,260	—125,620
Norfolk & Western	2,085	4,773,346	724,627	5,719,694	497,301	986,501	67,990	1,774,462	105,629	3,445,679	60.24	2,274,014	413,000	1,860,738	—24,295
Northwestern Pacific	507	224,079	191,180	465,451	46,495	45,540	4,767	150,623	10,497	259,562	55.77	205,888	20,963	184,924	—286,691
Oregon Short Line	2,306	1,947,894	576,362	2,741,862	291,335	269,958	32,609	689,423	82,372	1,415,050	51.61	1,326,811	271,289	1,055,469	—201,414
Oregon-Washington R. R. & Nav. Co	2,070	1,194,401	571,543	1,917,154	301,704	680,058	45,099	1,357,202	80,852	2,759,715	70.79	559,952	127,739	432,198	—107,031
Panhandle & Santa Fe	709	459,004	103,901	590,244	38,978	162,574	5,048	314,026	12,473	680,058	53.20	276,218	196,327	79,355	—739,202
Philadelphia & Reading	1,127	4,410,483	782,336	5,534,439	426,650	2,346,789	46,866	3,908,262	92,505	6,569,273	70.62	1,626,177	177,414	1,448,763	—1,982
Pittsburgh, Shawmut & Northern	205	91,566	5,927	100,863	22,650	46,112	1,578	107,311	4,639	181,220	106.39	—6,448	1,808	—8,256	—29,301
Port Reading	21	124,594	.....	156,632	15,895	73,373	40	98,006	172	217,781	62.57	58,626	10,500	48,126	—179,748
St. Louis, Brownsville & Mexico	548	187,919	82,237	295,617	42,513	37,609	10,904	79,004	11,325	181,220	61.30	114,396	8,000	106,396	25,304
St. Louis, Merchants Bridge Terminal	9	.....	2,628	316,004	42,873	26,342	910	139,936	7,718	217,781	68.92	98,222	7,516	90,706	—4,999
St. Louis, San Francisco & Texas	143	62,996	21,426	90,863	11,196	14,733	1,786	41,681	5,122	74,520	82.01	16,342	1,491	14,851	85,230
St. Louis Southwestern	1,754	1,069,701	335,027	1,487,663	146,728	210,889	45,008	405,992	51,809	862,187	57.91	625,476	101,793	523,505	—34,247
San Antonio and Aransas Pass	732	281,723	125,176	434,113	55,603	51,865	7,518	148,431	12,738	275,864	63.55	158,248	15,000	143,220	67,030
Seaboard	3,461	1,482,694	801,870	2,492,372	304,226	432,143	72,400	921,528	72,736	1,817,243	72.91	675,129	112,500	562,411	

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF SEPTEMBER, 1917—Continued

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Maintenance of: Way and structures.	Equipment.	Operating expenses: Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Southern in Miss.	278	$67,344	$38,877	$115,804	$21,853	$9,959	$2,605	$48,713	$3,977	$87,109	75.22	$28,694	$9,500	$19,185	$4,487
Southern Pacific	7,102	8,372,937	3,056,615	12,534,208	832,593	1,403,509	183,179	4,533,572	301,747	7,434,554	59.31	5,099,653	2,936,037	2,160,108	—1,885,946
Spokane, Portland & Seattle	554	383,697	161,021	593,427	71,257	45,228	7,645	151,757	13,528	294,209	49.58	299,218	58,300	240,828	24,185
Staten Island Rapid Transit Co.	24	64,885	63,101	140,474	21,082	12,302	922	64,897	5,330	104,533	74.41	35,941	9,000	26,936	10,534
Terminal R. R. Assn. of St. Louis	36	.....	2,698	293,397	49,159	34,896	958	106,112	6,157	199,102	67.86	94,294	36,066	58,228	—93,015
Texas & Fort Smith	81	66,901	12,799	86,650	7,794	4,593	3,590	27,004	4,559	43,798	50.55	42,851	7,395	35,456	—6,469
Texas & New Orleans	468	392,009	124,053	577,500	44,478	83,938	9,299	156,989	11,221	336,527	58.27	240,972	179,518	60,317	—62,162
Texas & Pacific	1,946	1,153,785	568,690	1,862,020	173,181	299,735	38,444	665,271	59,724	1,249,156	67.09	612,863	125,000	487,454	—25,796
Toledo, Peoria & Western	247	59,225	42,480	108,803	17,625	26,528	2,554	43,336	4,232	94,278	86.65	14,525	8,000	6,525	—2,960
Ulster and Delaware	129	46,850	31,071	94,988	10,926	11,426	712	44,462	2,923	70,733	74.47	24,255	4,000	20,243	5,838
Union Pacific	3,621	5,054,627	1,509,302	7,204,241	721,918	860,654	99,731	1,992,023	193,624	3,924,766	54.48	3,279,474	489,660	2,789,640	—312,696
Western Maryland	697	1,001,710	114,681	1,205,513	130,542	231,824	22,094	386,757	29,631	815,841	67.68	389,671	49,000	340,671	—82,696
Western Pacific	958	798,144	147,718	985,519	164,866	82,912	20,775	310,560	44,883	636,568	64.59	348,951	39,716	309,225	—26,761
Western Ry. of Alabama	133	96,599	49,369	161,694	15,767	27,494	6,428	48,086	4,387	104,491	64.62	57,203	14,400	42,802	9,420

NINE MONTHS OF CALENDAR YEAR, 1917

Ann Arbor	293	$1,790,821	$413,328	$2,357,211	$212,196	$365,098	$53,886	$1,046,039	$81,602	$1,763,505	74.81	$593,706	$117,900	$475,672	—$26,737
Arizona Eastern	377	2,520,437	467,347	3,228,649	388,507	316,885	24,093	693,553	132,851	1,617,280	50.09	1,611,368	229,760	1,380,946	225,754
Atlanta & West Point	93	627,671	464,499	1,252,113	130,886	213,853	58,982	416,057	45,138	887,451	70.88	364,661	78,111	286,250	66,039
Atlanta, Birmingham & Atlantic	640	2,170,938	470,431	2,862,727	415,823	477,662	139,571	1,283,369	97,181	2,411,821	84.25	450,906	123,300	326,800	5,693
Baltimore & Ohio	4,675	76,477,919	14,016,315	98,641,567	11,223,351	18,659,267	1,758,929	39,992,703	2,339,337	74,604,776	75.63	24,036,791	3,125,882	20,900,925	118,966
Belt Ry. Co. of Chicago	31	.....	.....	2,906,285	207,833	408,404	12,424	1,370,195	62,628	2,061,486	70.93	844,799	118,258	726,540	82,766
Bingham & Garfield	36	2,302,461	45,006	2,383,098	255,529	291,272	10,890	347,361	31,271	936,575	39.30	1,446,522	173,257	1,273,264	—1,381
Canadian Pacific Lines in Maine	233	1,534,354	227,174	1,870,659	335,008	268,627	52,817	821,600	44,093	1,522,148	81.37	348,511	73,500	275,011	—193,256
Carolina, Clinchfield & Ohio	283	2,724,454	216,236	3,012,534	321,766	469,610	147,642	672,251	117,438	1,725,789	57.29	1,286,745	120,600	1,166,133	297,988
Carolina, Clinchfield & Ohio of S. C.	17	140,096	13,359	158,852	15,692	956	23,077	34,973	9,601	84,301	53.07	74,550	5,400	69,116	20,741
Chicago, Burlington & Quincy	9,373	64,094,481	17,908,518	90,231,049	10,410,264	13,761,024	1,300,776	30,033,089	2,031,845	58,679,059	65.03	31,551,990	4,855,005	26,696,984	—559,308
Chicago, Indianapolis & Louisville	654	4,633,444	1,584,930	6,767,002	626,020	1,208,807	182,129	2,476,944	168,061	4,663,792	68.92	2,103,210	331,428	1,771,406	—44,233
Chicago, Rock Island & Gulf	479	1,951,655	595,760	2,738,445	378,600	383,874	92,403	904,890	82,716	1,852,989	67.67	885,456	102,828	782,068	157,245
Chicago, Rock Island & Pacific	7,716	41,364,632	16,045,314	62,259,983	8,186,742	12,231,684	1,229,368	23,404,362	1,677,691	46,911,574	75.35	15,348,409	2,831,301	12,498,410	—2,366,941
Chicago, St. Paul, Minn. & Omaha	1,752	10,017,648	4,268,737	15,599,804	1,907,548	2,203,170	257,436	6,454,531	407,466	11,360,765	72.83	4,239,039	942,244	3,290,374	—889,837
Chicago, Terre Haute & Southeastern	374	2,514,420	159,936	2,742,054	320,048	642,502	41,793	940,516	74,838	2,041,903	74.47	700,150	145,857	542,575	208,652
Cincinnati, Ind. & Western	321	1,383,683	425,019	1,997,149	248,031	332,753	61,967	841,595	68,115	1,556,501	77.94	440,648	91,494	349,153	—22,204
Cincinnati, New Orleans & Texas Pacific	337	6,948,895	2,125,590	9,726,174	741,507	2,182,578	258,441	3,031,729	179,839	6,454,237	66.36	3,271,937	544,750	2,727,076	74,413
Cincinnati Northern	245	1,601,945	140,574	1,801,414	273,070	301,404	28,362	686,038	28,356	1,313,606	72.92	487,808	68,000	419,788	20,953
Cleveland, Cincinnati, Chic. & St. Louis	2,386	26,715,772	8,694,207	38,817,403	3,382,930	7,146,609	746,262	15,439,824	780,232	27,728,373	71.43	11,089,030	1,628,000	9,455,031	—540,460
Coal & Coke	197	759,274	172,041	970,919	187,984	239,951	10,360	373,749	26,585	838,630	86.37	132,289	48,000	84,289	—27,600
Colorado & Southern	1,102	5,999,617	1,403,909	7,955,161	761,517	1,359,588	101,930	2,391,946	236,302	4,899,200	61.59	3,055,960	462,737	2,592,218	687,831
Colorado & Wyoming	42	306,759	22,727	905,690	77,371	127,039	1,134	291,642	37,141	534,327	59.00	371,363	32,077	339,285	—12,731
Colorado Midland	338	452,340	86,836	577,202	167,440	96,317	27,174	255,506	15,840	567,168	98.26	10,034	27,123	—17,089	.....
Cripple Creek & Colorado Springs	86	701,766	135,885	860,519	76,807	93,827	14,957	182,775	27 647	427,326	49.66	433,192	29,571	403,620	—67,515
Cumberland Valley	163	2,947,321	524,494	3,633,105	268,044	320,556	41,755	1,151,611	95,762	1,876,567	51.65	1,756,537	361,717	1,394,819	151,130
Delaware & Hudson Co.—R. R. Dept.	879	18,814,871	2,346,131	22,359,268	1,948,354	4,458,013	235,670	9,231,036	800,260	16,773,786	75.02	5,585,481	580,436	5,002,093	—883,846
Delaware, Lackawanna & Western	955	31,192,772	6,901,185	42,701,467	3,433,701	6,410,087	718,347	15,668,682	809,717	27,348,128	64.04	15,353,339	2,326,794	13,021,263	—30,818
Denver & Rio Grande	2,579	15,808,878	3,438,608	20,619,524	2,601,314	3,667,771	359,269	6,465,368	627,886	14,006,297	67.93	6,613,227	871,010	5,741,046	—878,102
Denver & Salt Lake	255	1,212,646	272,204	1,538,623	299,650	412,642	20,582	778,575	44,196	1,555,638	101.11	—17,015	74,250	—91,276	—358,315
Detroit and Mackinac	385	667,606	254,993	999,156	125,376	210,534	21,798	384,181	35,221	778,469	77.91	220,687	73,452	146,853	—87,638
Detroit & Toledo Shore Line	80	1,361,521	.....	1,379,787	72,151	99,511	16,612	430,614	30,707	649,597	47.08	730,190	65,554	664,549	—31,706
Detroit, Grand Haven & Milwaukee	190	1,718,872	351,910	2,467,757	352,465	409,124	49,820	1,483,295	56,159	2,351,102	95.27	116,648	32,580	83,052	—305,687
Detroit, Toledo & Ironton	441	1,758,686	114,564	2,021,647	241,671	313,286	38,737	1,125,594	70.281	1,789,571	88.52	232,076	72,000	159,525	—212,911
Duluth & Iron Range	270	5,085,160	184,371	5,452,402	878,023	684,719	14,254	1,450,760	149,313	3,191,652	58.54	2,260,750	435,921	1,824,828	—681,293
Duluth, Missabe & Northern	414	10,418,735	298,435	11,311,302	1,338,076	984,968	28,504	2,290,463	377,593	5,031,785	44.48	6,279,517	1,844,718	4,434,798	1,585,051
Duluth, South Shore & Atlantic	600	2,238,000	795,712	3,260,141	615,010	416,192	67,130	1,378,622	80.051	2,595,518	79.61	664,623	143,699	520,909	—102,351
Duluth, Winnipeg & Pacific	175	1,341,603	214,162	1,595,931	156,824	198,126	24,169	693,239	70,539	1,148,428	71.96	447,502	79,778	367,724	—87,228
Elgin, Joliet & Eastern	805	11,080,811	120	11,890,099	1,066,696	2,924,806	73,310	4,042,306	237,054	8,339,383	70.14	3,550,717	464,062	3,086,593	—616,199
El Paso & Southwestern Co.	1,028	7,928,968	1,848,025	10,305,853	955,918	1,217,379	184,892	2,759,634	264,643	5,448,715	52.87	4,857,137	347,785	4,509,186	283,439
Erie	1,987	39,321,429	7,395,868	52,322,966	5,001,549	12,612,032	881,999	23,621,749	1,156,372	43,604,277	83.34	8,718,689	2,020,365	6,681,432	—5,091,534
Florida East Coast	765	3,268,769	2,080,939	6,305,286	598,757	741,340	78,205	1,821,013	141,322	3,286,013	52.12	3,019,273	363,926	2,654,908	—278,722
Ft. Worth & Denver City	454	3,128,025	1,171,531	4,559,699	428,911	804,630	69,135	1,327,682	160,249	2,817,062	61.78	1,742,637	232,000	1,510,553	63,136
Galveston, Harrisburg & San Antonio	1,360	10,267,675	3,307,490	14,388,058	1,725,172	1,793,498	298,824	4,611,085	358,082	8,841,355	61.45	5,546,703	830,161	4,706,212	1,983,606
Galveston Wharf	14	.....	.....	862,710	9,730	10,207	2,605	245,887	8,036	478,254	55.44	384,455	118,800	265,655	—126,167
Georgia	334	1,857,147	748,406	2,817,621	245,782	445,544	124,455	1,123,117	82,729	2,022,313	71.77	795,308	52,950	742,214	86,633
Georgia, Southern & Florida	402	1,207,762	623,160	2,070,646	295,520	472,698	65,769	757,739	83,660	1,680,437	81.16	390,210	116,124	272,841	—59,439
Grand Rapids & Indiana	575	3,195,328	1,305,540	4,935,544	594,584	865,339	94,042	2,200,961	172,114	3,943,290	79.89	992,354	212,957	778,843	—76,314
Grand Trunk Western	347	5,384,816	1,203,283	7,161,616	834,402	1,283,795	150,802	3,127,100	184,021	5,636,157	78.70	1,525,458	335,115	1,189,285	—918,694
Great Northern	8,221	46,857,163	11,708,344	64,759,846	9,387,459	8,957,066	987,927	22,476,844	1,116,491	43,427,737	67.06	21,332,109	4,132,262	17,196,213	—2,281,773
Gulf & Ship Island	307	1,257,974	306,977	1,665,768	240,342	233,864	29,566	496,585	73,307	1,075,104	64.54	590,663	113,550	475,918	—19,232
Gulf, Colorado & Santa Fe	1,937	9,085,598	2,488,472	12,402,871	2,343,747	1,798,484	267,515	4,015,570	497,300	8,901,680	71.77	3,501,190	580,018	2,917,819	694,410
Gulf, Mobile & Northern	402	1,385,677	235,480	1,713,141	232,332	288,959	35,953	527,518	78,023	1,162,842	67.88	550,298	76,182	474,108	49,815
Hocking Valley	350	6,673,408	714,731	7,924,149	692,714	1,669,399	81,533	2,632,781	182,793	5,258,776	66.36	2,665,373	597,000	2,061,654	621,432

REVENUES AND EXPENSES OF RAILWAYS

NINE MONTHS OF CALENDAR YEAR, 1917—Continued

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Houston & Texas Central	927	$3,950,208	$1,238,407	$5,611,145	$754,811	$690,793	$158,188	$1,821,745	$171,618	$3,620,111	64.52	$1,991,033	$354,021	$1,631,848	$399,438
Houston East & West Texas	193	952,032	294,050	1,335,770	171,110	150,338	20,277	429,712	28,853	804,403	60.22	531,367	108,686	421,138	78,785
Illinois Central	4,766	46,783,452	12,197,556	64,232,607	8,536,918	13,335,272	979,279	20,913,962	1,513,694	45,508,198	70.85	18,724,410	4,494,730	14,219,661	6,367,821	
Indiana Harbor Belt	109	.....	.....	3,941,871	443,887	486,706	26,065	1,915,898	90,632	2,963,189	75.17	978,682	77,961	900,653	—180,692	
International & Great Northern	1,160	6,035,468	2,073,575	8,722,510	1,072,866	1,446,303	205,290	3,250,901	279,246	6,205,665	71.15	2,516,845	288,638	2,226,050	788,593	
Kanawha & Michigan	177	2,270,152	302,085	2,666,352	338,931	653,518	27,831	780,804	68,152	1,869,417	70.11	796,935	170,508	626,404	—197,269	
Kansas City, Mexico & Orient	272	723,666	110,484	879,713	150,782	235,776	47,850	406,985	53,428	894,821	101.72	—15,109	54,079	—69,252	—96,632	
Kansas City Southern	755	7,078,824	1,278,427	9,090,469	885,482	1,320,257	229,285	2,827,028	303,862	5,550,794	61.06	3,539,675	455,933	3,080,194	571,049	
Kansas City Terminal Co	23	.....	.....	836,763	73,180	125,960	.....	321,982	16,331	541,217	64.68	295,546	164,868	133,488	—63,060	
Lake Erie & Western	900	5,276,768	507,134	6,081,242	712,029	995,675	123,459	2,381,213	135,652	4,348,026	71.50	1,733,216	273,500	1,459,242	—305,121	
Lehigh & Hudson River	96	1,527,114	37,678	1,716,889	158,053	254,951	13,864	645,744	43,677	1,116,291	65.02	600,597	50,400	550,196	—13,668	
Lehigh & New England	296	2,515,647	11,764	2,736,273	330,522	403,695	25,361	829,035	80,260	1,668,691	60.98	1,067,581	132,260	935,321	143,157	
Lehigh Valley	1,442	33,195,786	3,646,111	39,965,604	4,515,086	6,908,295	739,532	17,248,739	860,732	30,402,665	76.07	9,562,939	1,685,711	7,875,594	—1,560,101	
Long Island	397	3,382,466	7,886,167	12,838,720	1,405,881	1,356,999	110,654	5,257,663	334,214	8,535,436	66.48	4,303,284	707,375	3,594,467	191,714	
Los Angeles & Salt Lake	1,154	6,051,891	2,518,697	9,351,412	990,062	1,322,838	295,356	2,689,561	212,886	5,659,420	60.52	3,691,992	495,618	3,195,915	—38,639	
Louisiana & Arkansas	302	913,314	180,925	1,137,843	205,126	192,539	34,405	349,107	39,518	817,575	71.85	320,267	90,024	230,201	300,538	
Louisiana Ry. & Navigation Co	342	1,334,640	288,580	1,729,301	238,381	239,131	58,176	655,626	60,144	1,251,460	72.37	477,841	153,961	323,527	—18,319	
Louisiana Western	207	1,728,450	648,161	2,528,131	202,398	294,714	70,328	560,118	68,996	1,213,262	47.99	1,314,869	338,794	974,975	333,012	
Louisville & Nashville	2,070	40,523,900	11,579,980	55,678,847	6,889,725	10,727,486	1,150,625	18,354,596	1,122,488	38,384,715	68.94	17,294,133	3,223,258	14,060,969	—248,055	
Louisville, Henderson & St. Louis	200	1,200,857	354,819	1,639,407	213,673	197,655	44,095	540,950	31,651	1,028,025	62.71	611,382	37,700	573,163	194,698	
Maine Central	1,216	6,730,549	2,929,064	10,592,948	1,206,054	1,449,953	110,225	4,756,806	259,968	7,820,874	73.83	2,772,074	528,388	2,243,486	—368,184	
Michigan Central	1,861	24,665,701	9,333,226	38,405,593	4,329,919	5,822,205	616,746	16,411,187	710,138	28,475,334	74.14	9,930,258	1,564,000	8,356,116	—1,966,363	
Midland Valley	382	1,591,750	437,983	2,115,114	452,459	271,588	26,957	653,756	75,568	1,480,326	69.99	634,788	49,541	584,979	219,767	
Mineral Range	120	833,263	27,392	885,514	195,837	166,776	4,277	483,065	10,485	860,442	97.17	25,072	28,277	—3,205	—110,593	
Minn. & St. Louis	1,646	6,091,899	1,443,438	8,069,272	1,220,277	886,993	159,949	3,300,756	204,300	5,771,963	71.53	2,297,309	401,700	1,893,484	—380,462	
Minn., St. Paul & Sault Ste. Marie	4,228	18,552,319	4,893,724	25,456,001	2,822,279	3,549,564	433,459	9,314,059	586,566	16,788,950	65.95	8,667,051	1,009,472	7,565,388	—2,859,197	
Missouri & North Arkansas	365	659,079	328,445	1,064,222	181,603	168,855	36,119	403,146	47,654	832,815	78.26	231,407	45,300	184,473	70,585	
Missouri, Kansas & Texas System	3,865	20,847,259	7,571,837	30,695,612	4,929,689	6,098,446	595,537	11,059,478	932,236	23,859,020	77.73	6,836,592	1,332,022	5,495,678	2,345,412	
Missouri, Oklahoma & Gulf	332	1,087,523	213,436	1,390,408	180,216	244,181	37,864	604,790	66,254	1,134,783	81.62	255,624	81,888	172,936	186,163	
Missouri, Okla. & Gulf of Texas	9	188,994	3,433	194,470	22,017	18,210	14,240	70,750	13,049	138,266	71.10	56,203	1,653	54,537	48,127	
Missouri Pacific	7,301	19,280,837	5,124,515	26,362,116	3,889,131	4,063,989	560,087	8,546,220	584,586	17,711,470	67.19	8,650,646	1,255,000	7,391,762	.....	
Mobile & Ohio	1,160	8,478,047	1,137,334	10,178,518	1,085,272	2,389,375	338,946	3,491,304	287,455	7,601,987	74.69	2,576,531	450,521	2,123,607	11,096	
Monongahela	108	1,448,664	124,338	1,607,286	304,818	119,451	8,087	450,380	37,795	920,531	57.27	686,754	54,000	632,754	—103,597	
Monongahela Connecting	6	.....	.....	1,361,926	283,617	225,787	3,087	706,087	37,822	1,256,401	92.25	105,525	17,503	88,021	29,786	
Morgans La. & Texas R. R. & S. S. Co	400	3,446,101	1,030,300	4,794,403	509,893	677,651	106,350	1,382,932	116,604	2,812,866	58.67	1,981,537	384,567	1,593,659	900,994	
Nashville, Chattanooga & St. Louis	1,236	7,528,111	2,512,716	10,957,623	1,138,047	2,131,726	494,773	4,181,472	323,028	8,379,998	76.48	2,577,625	340,000	2,235,285	—20,476	
Nevada Northern	165	1,637,821	136,696	1,819,547	179,579	190,551	6,751	329,511	46,191	753,468	41.41	1,066,079	93,966	972,111	77,375	
New Orleans & Northeastern	204	2,543,787	628,707	3,513,214	346,697	664,828	92,215	1,158,512	98,211	2,395,701	68.19	1,117,513	255,336	861,032	31,045	
New Orleans Great Northern	285	1,074,385	268,803	1,412,567	145,425	226,730	28,080	432,828	59,453	894,577	63.33	517,990	65,372	452,044	—162,604	
New Orleans, Texas & Mexico	191	762,900	206,340	1,005,938	158,277	160,526	40,702	283,659	58,308	701,475	69.73	304,463	12,600	291,740	251,591	
New York Central	6,082	109,395,954	42,646,854	176,648,596	19,178,395	30,912,476	2,375,487	69,135,389	4,014,667	128,151,464	72.55	48,497,132	8,643,366	39,833,037	—13,304,188	
New York, Chicago & St. Louis	571	10,985,121	1,106,552	12,657,904	1,081,079	1,934,499	426,961	5,998,874	312,079	9,793,898	77.37	2,864,005	460,000	2,403,874	385,602	
New York, New Haven & Hartford	1,997	30,424,090	25,376,374	63,939,270	6,410,964	8,869,363	397,242	26,782,983	1,794,644	45,240,408	70.76	18,698,861	2,440,000	16,253,449	—870,597	
New York, Ontario & Western	568	4,393,798	1,464,949	6,985,915	749,538	1,140,033	84,285	2,737,414	174,349	4,885,619	69.94	2,100,296	230,900	1,868,969	—114,009	
New York, Philadelphia & Norfolk	112	3,206,219	542,747	4,097,652	384,389	736,716	45,828	1,626,971	99,682	2,944,755	71.86	1,152,897	198,270	954,283	—262,690	
New York, Susquehanna & Western	135	1,930,895	452,447	2,665,843	231,105	302,066	21,287	1,420,094	51,098	2,024,283	75.93	641,559	145,499	495,435	—124,007	
Norfolk & Western	2,085	41,737,465	4,890,186	48,365,494	4,575,977	8,935,736	597,350	14,959,937	885,286	29,984,623	62.00	18,380,871	3,796,000	14,583,522	—3,239,707	
Norfolk Southern	908	2,855,045	897,260	3,995,285	484,196	572,498	74,760	1,380,519	179,265	2,692,162	67.38	1,303,123	140,120	1,162,272	80,312	
Northern Pacific	6,534	47,762,341	11,517,968	64,682,896	8,896,315	7,189,014	924,073	20,341,038	1,184,411	38,498,690	59.52	26,184,206	4,741,385	21,434,612	—30,070	
Northwestern Pacific	507	1,646,942	1,531,696	3,583,365	512,258	409,437	48,981	1,228,488	94,635	2,300,545	64.20	1,282,818	174,051	1,108,618	—64,190	
Oahu Ry. & Land Co	114	829,740	233,137	1,155,009	107,462	87,200	7,967	301,779	51,485	555,806	48.12	599,203	75,768	523,435	16,667	
Oregon Short Line	2,307	16,301,843	4,226,630	22,287,153	2,486,759	2,400,876	323,389	5,820,458	706,541	12,122,006	54.39	10,165,146	1,787,411	8,375,135	197,018	
Oregon-Washington R. R. & Nav. Co	2,054	10,725,619	3,895,402	15,956,266	2,403,743	1,719,740	415,221	5,273,682	710,392	10,712,485	67.14	5,243,781	942,813	4,300,197	1,170,169	
Panhandle & Santa Fe	683	4,075,931	822,257	5,114,405	656,199	846,713	42,815	1,394,935	114,677	3,031,757	59.28	2,082,647	345,509	1,736,172	122,055	
Pennsylvania Company	1,755	41,980,983	10,264,205	58,587,502	6,991,964	10,589,453	785,914	25,350,027	1,409,695	45,532,236	77.72	13,055,266	3,366,957	9,687,611	—6,816,356	
Pennsylvania Railroad	4,563	134,405,479	38,776,311	191,945,168	23,020,510	37,916,595	2,114,801	76,284,739	4,732,613	147,059,476	76.62	44,885,693	7,606,434	37,261,202	—5,245,246	
Peoria & Pekin Union	19	129,381	51,380	913,934	98,250	132,260	349	547,189	29,302	807,350	88.34	106,585	73,000	33,583	—94,311	
Pere Marquette	2,248	8,457,326	2,341,872	12,117,088	1,433,073	1,476,929	240,666	4,632,222	310,003	8,118,203	67.00	3,998,885	334,889	3,663,972	388,231	
Philadelphia & Reading	1,127	40,685,231	5,771,990	49,643,556	3,101,473	8,857,242	454,353	20,436,896	816,122	33,773,131	68.03	15,870,425	1,353,488	14,515,927	—3,110,899	
Philadelphia, Baltimore & Washington	718	11,907,316	9,654,943	23,717,393	2,901,920	4,507,823	283,765	9,866,254	523,232	18,061,562	76.15	5,655,831	777,603	4,878,002	334,060	
Pittsburgh & Lake Erie	225	15,529,888	1,745,897	18,903,514	2,172,970	3,576,748	148,081	5,875,105	328,133	12,146,944	64.26	6,756,570	891,200	5,865,370	—2,805,454	
Pittsburgh & West Virginia	63	716,655	62,187	841,623	105,820	123,080	12,589	257,594	37,653	558,630	66.38	282,993	54,859	228,133	.....	
Pittsburgh, Cincinnati, Chic. & St. Louis	2,399	38,470,836	10,276,034	54,824,756	6,013,028	10,739,454	913,155	21,762,214	1,296,491	41,161,963	75.08	13,662,793	2,170,934	11,490,980	667,122	
Pittsburgh, Shawmut & Northern	205	848,527	49,807	925,066	157,090	423,196	11,974	424,678	43,444	1,060,382	114.63	—135,315	16,108	—151,424	—416,110	
Port Reading	21	219,007	.....	1,442,711	98,699	87,899	356	792,411	7,080	985,800	68.33	456,911	93,500	363,411	—71,851	
Richmond, Fredericksburg & Potomac	88	1,815,927	1,316,544	3,562,115	284,906	397,014	34,464	1,226,013	77,221	2,056,500	57.73	1,505,615	279,359	1,226,111	—3,830	
Rutland	468	1,793,855	972,476	3,257,554	395,777	519,090	94,026	1,338,104	74,186	2,431,876	74.65	825,678	169,972	655,547	—142,518	
St. Joseph & Grand Island	258	1,372,709	235,806	1,726,288	694,842	221,448	32,288	633,477	48,917	1,645,206	95.30	81,082	79,468	1,396	—400,681	
St. Louis, Brownsville & Mexico	548	1,618,720	963,771	2,879,460	430,138	347,730	94,145	806,064	99,667	1,754,764	60.94	1,124,696	72,000	1,051,647	125,064	
St. Louis, Merchants Bridge Terminal	9	.....	7,129	2,327,833	288,620	143,566	8,404	1,187,706	70,684	1,698,982	72.99	628,850	67,838	560,984	66,670	
St. Louis-San Francisco	4,752	27,965,061	10,938,766	41,873,629	4,851,961	6,761,875	590,482	13,878,679	1,142,966	27,038,149	64.57	14,835,480	1,741,430	13,082,374	.....	
St. Louis, San Francisco & Texas	204	587,798	188,909	849,990	150,804	141,606	19,475	392,751	52,290	756,928	89.05	93,062	13,422	79,596	56,025	

National Railway Appliances Fxhibit

At a meeting of the board of directors of the National Railway Appliances Association on November 12, spaces were awarded to members for the exhibition to be held at the Coliseum and Annex, Chicago, from March 18 to 21, inclusive, of the coming year. A total of 257 out of 267 spaces have been assigned as compared with 226 out of 236 assigned at the same time a year ago, or 31 more spaces. A list of the present members of the association follows:

Adams & Westlake Company, Chicago.
Adams Motor & Manufacturing Company, Chicago.
A. G. A. Railway Light & Signal Company, Elizabeth, N. J.
Ajax Rail Anchor Company, Chicago.
Alger Supply Company, Chicago.
American Hoist & Derrick Company, St. Paul, Minn.
American Kron Scale Company, New York.
American Steel & Wire Company, Chicago.
American Vulcanized Fibre Company, Wilmington, Del.
American Valve & Motor Company, Cincinnati, Ohio.
Armco Iron Culvert & Flume Manufacturers' Ass'n, Middletown, Ohio.
Associated Manufacturers of Malleable Iron, Cleveland, Ohio.
Automatic Electric Company, Chicago.
Ayer & Lord Tie Company, Chicago.
Asbestos Protected Metal Company, Pittsburgh, Pa.
Alexander Crossing Company, Clinton, Ill.
American Auto Connector Company, Cleveland, Ohio.
Allith-Prouty Company, Danville, Ill.
Anti-Creeper Corporation, New York.
Barrett Company, The, New York.
Bethlehem Steel Company, Sooth Bethlehem, Pa.
Bryant Zinc Company, Chicago.
Brach Supply Company, Newark, N. J.
Buda Company, Chicago.
Baker, John, Jr., Chicago.
Cambria Steel Company, Philadelphia, Pa.
Chipman Chemical Engineering Company, New York.
Chicago Steel Post Company, Chicago.
Carbic Manufacturing Company, Duluth, Minn.
Cast Iron Pipe Manufacturers' Ass'n, New York.
Chicago Bridge & Iron Works, Chicago.
Chicago Flag & Decorating Company, Chicago.
Chicago Malleable Castings Company, Chicago.
Chicago Pneumatic Tool Company, Chicago.
Chicago Railway Signal & Supply Company, Chicago.
Cleveland Frog & Crossing Company, Cleveland, Ohio.
Crear-Adams & Co., Chicago.
Corning Glass Works, Corning, N. Y.
D. & A. Post Mold Company, Three Rivers, Mich.
Detroit Graphite Company, Detroit, Mich.
Dilworth Porter & Co., Inc., Pittsburgh, Pa.
Dickinson, Paul, Inc., Chicago.
Dixon Crucible Company, Jos., Jersey City, N. J.
Duff Manufacturing Company, Pittsburgh, Pa.
Dayton Malleable Iron Company, Dayton, Ohio.
Edison, Inc., Thos. A., Bloomfield, N. J.
Edison Storage Battery Company, Orange, N. J.
Electric Railway Improvement Company, Cleveland, Ohio.
Electric Storage Battery Company, Philadelphia, Pa.
Elyria Iron & Steel Company, Cleveland, Ohio.
Eymon Continuous Crossing Company, Marion, Ohio.
Fairbanks, Morse & Co., Chicago, Ill.
Fairmont Gas Engine & Railway Motor Car Company, Fairmont, Minn.
Federal Signal Company, Albany, N. Y.
Frictionless Rail Company, Boston, Mass.
General Railway Signal Company, Rochester, N. Y.
Gurley, W. & L. E., Troy, N. Y.
General Electric Company, Schenectady, N. Y.
Gould Storage Battery Company, New York.
Grip Nut Company, Chicago.
Graver Tank Works, East Chicago, Ind.
Hatfield Rail Joint Company, Macon, Ga.
Hazard Manufacturing Company, Chicago.
Hyatt Roller Bearing Company, Newark, N. J.
Hall Switch & Signal Company, New York.
Hayes Track Appliance Company, Richmond, Ind.
Hoeschen Manufacturing Company, Omaha, Neb.
Hubbard Manufacturing Company, Pittsburgh, Pa.
Handlan-Buck Manufacturing Company, St. Louis, Mo.
Hunt & Co., H. W., Chicago.
Hagaman Castle Supply Company, New York.
Ingersoll-Rand Company, New York.
International Steel Tie Company, Cleveland, Ohio,
Iowa Gate Company, Cedar Falls, Iowa.
Johns-Manville Company, H. W., Chicago.
Jonnison Wright Company, Toledo, Ohio.
Joyce Cridland Company, Toledo, Ohio.
Jordan Company, O. F., East Chicago, Ind.
Julian Beggs Signal Company, Terre Haute, Ind.
Kalamazoo Railway Supply Company, Kalamazoo, Mich.
Kellogg Switchboard & Supply Company, Chicago.
Keppler Glass Constructions Company, Inc., New York.
Kerite Insulated Wire & Cable Company, New York.
Keystone Grinder & Manufacturing Company, Pittsburgh, Pa.
Kelly-Darby Company, Inc., Chicago.
Kilbourn & Jacobs Manufacturing Company, Columbus, Ohio.
Kettle River Company, Minneapolis, Minn.
Kilby Frog & Switch Company, Birmingham, Ala.
Lackawanna Steel Company, Buffalo, N. Y.
Lane & Bolder, Chicago.
Lehon Company, The, Chicago.
Lidgerwood Manufacturing Company, New York.
Louisiana Red Cypress Company, New Orleans, La.
Long, Chas. R., Company, Louisville, Ky.
Lufkin Rule Company, Saginaw, Mich.
M. W. Supply Company, Philadelphia, Pa.
Madden Company, The, Chicago.
MacRae's Blue Book Company, Chicago.
Massey Company, C. F., Chicago.
Miller Train Control Corp., Danville, Ill.
Morden Frog & Crossing Works, Chicago.
Mudge & Co., Chicago.
McGraw Hill Publishing Company, New York.
Marsh & Truman Lumber Company, Chicago.
Monroe Calculating Machine Company, Chicago.
Mercury Manufacturing Company, Chicago.
McComber & Whyte Company, Kenosha, Wis.
National Carbon Company, Cleveland, Ohio.
National Lock Washer Company, Newark, N. J.
National Indicator Company, Long Island, N. Y.
National Concrete Machinery Company, Madison, Wis.
National Lead Company, New York.
National Malleable Castings Company, Cleveland, Ohio.
Nichols & Bros., G. P., Chicago.
Northwestern Motor Company, Eau Claire, Wis.
National Surface Guard Company, Chicago, Ill.
Ogle Construction Company, Chicago.
Okonite Company, New York.
O'Malley Beare Valve Company, Chicago.
Otley Paint Manufacturing Company, Chicago.
Post, G. A., New York.
Patterson, W. W., Company, Pittsburgh, Pa.
Positive Rail Anchor Company, Marion, Ind.
Page Woven Wire Fence Company, Monessen, Pa.
P. & M. Company, Chicago.
Pocket List of Railway Officials, New York.
Protective Signal Manufacturing Company, Denver, Colo.
Pittsburgh-Des Moines Steel Company, Pittsburgh, Pa.
Polk-Genung-Polk Company, Chicago.
Penton Publishing Company, Cleveland, Ohio.
Q. & C. Company, New York.
Rail Joint Company, New York.
Railway Review, Chicago.
Ramapo Iron Works, Hillburn, N. Y.
Reading Specialties Company, Reading, Pa.
R. E. & M. of W. Association, Sterling, Ill.
Railway Motor Car Company of America, Chicago.
Railroad Supply Company, The, Chicago.
Railroad Water & Coal Handling Company, Chicago.
Roberts & Schaefer Company, Chicago.
Roos Foundry Company, Henry, Chicago.
Simmons-Boardman Publishing Company, New York.
Signal Accessories Company, New York.
Safe Lock Switch Machine Company, Lexington, Ky.
Sellers Manufacturing Company, Chicago.
Snow Construction Company, T. W., Chicago.
Squire-Cogswell Company, Chicago.
Simmen Railway Automatic Signal Company, Buffalo, N. Y.
Southern Pine Association, New Orleans, La.
Standard Asphalt & Refining Company, Chicago.
Standard Underground Cable Company, Pittsburgh, Pa.
Simple Gas Engine Company, Menasha, Wis.
Silver Steel Tie Company, New York.
Sperry, H. M., New York.
Tyler Underground Heating System, Pittsburgh, Pa.
Templeton, Kenley Company, Chicago.
Track Specialties Company, New York.
Toledo Scale Company, Toledo, Ohio.
Union Switch & Signal Company, Swissvale, Pa.
U. S. Wind Engine & Pump Company, Batavia, Ill.
Volkhardt Company, The, Stapleton, N. Y.
Verona Tool Works, Pittsburgh, Pa.
Wayne Oil Tank & Pump Company, Fort Wayne, Ind.
Wyoming Shovel Works, Wyoming, Pa.
Waterbury Battery Company, Waterbury, Conn.
Western Electric Company, New York.
Wharton, Wm., Jr., & Co., Easton, Pa.
Whali Company, C. H., Boston, Mass.
Whitaker-Glossner Company, Portsmouth, Ohio.
Yale & Towne Manufacturing Company, New York.

American Economic Association

The 30th annual meeting of the American Economic Association will be held with headquarters at the Hotel Adelphia, Philadelphia, Pa., December 27 to December 29. The general topic of the meeting will be War and Reconstruction. At the fourth session; to be held Friday, December 28, at 10 a. m., a paper will be presented on the "Present Valuation of Railroads by the Interstate Commerce Commission" by John Bauer of Princeton University. The paper will be discussed by: A. M. Sakolski, Albany, N. Y.; E. W. Bemis, Chicago; Milo R. Maltbie, New York City, and Charles A. Prouty, Director of Valuation of the Interstate Commerce Commission.

Railway Regiments' Tobacco Fund

Last week was a big week for the Tobacco Fund, subscriptions having been received from 24 supply companies or individuals. The following list brings the names of subscribers up to date at Tuesday noon, November 20:

Bettendorf Company, Bettendorf, Iowa	$10 a month
Cleveland Frog & Crossing Company, Cleveland, Ohio	10 a month
Curtain Supply Company, Chicago	10 a month
Dearborn Chemical Company, Chicago	10 a month
Paul Dickinson, Inc., Chicago	10 a month
Fairbanks, Morse & Co., Chicago	10 a month
Fowler Car Company, Chicago (to cover 2 months)	20
Fort Pitt Malleable Iron Company, Pittsburgh, Pa.	10 a month
Fort Pitt Spring & Manufacturing Company, Pittsburgh	10 a month
Franklin Railway Supply Company, New York, (to cover 6 months)	60
Illinois Car & Manufacturing Company, Hammond, Ind., (to cover 6 months)	60
Kelly Reamer Company, Cleveland, Ohio (contribution)	10
Keyoke Railway Equipment Company, Chicago	10 a month
J. E. Meek, New York (to cover 6 months)	60
Miller Train Control Corporation, Staunton, Va.	10 a month
Pilliod Company, New York	10 a month
Pickands, Brown & Co., Chicago (to cover 15 months)	150
Clive Runnells and LeRoy Kramer, of the Pullman Company	10 a month
F. K. Shults, New York (contribution)	25
Jos. B. Turbell, of American Brake Shoe & Foundry Company, New York (to cover 6 months)	60
Templeton, Kenly & Co., Chicago	10 a month
Union Spring & Manufacturing Company, Pittsburgh, Pa., (to cover 6 months)	60
H. Vissering & Co., Chicago	10 a month
W. H. Woodin, of American Car & Foundry Company, New York (to cover 6 months)	60

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings and places of meeting of those associations which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, Supt. Timber Preservation, B. & O., Mt. Royal Sta., Baltimore, Md. Next convention, January 22-24, 1918, Hotel Sherman, Chicago.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Morrison Hotel, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual dinner, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

CINCINNATI RAILWAY CLUB.—H. Boutet, Chief Interchange Inspector, Cin'ti Rys., 101 Carew Bldg., Cincinnati. Regular meetings, 2d Tuesday, February, May, September and November, Hotel Sinton, Cincinnati.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 568 Union Arcade Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh, Pa.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Traffic Manager, R. F. & P., Richmond, Va. Next meeting, November 27, Vanderbilt Hotel, New York.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month. Room 1856, Transportation Bldg., Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meeting, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—Geo. A. J. Hochgrebe, 623 Brisbane Bldg., Buffalo, N. Y. Meetings, 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.

PACIFIC RAILWAY CLUB.—W. S. Wollner, Assistant to Chief Engineer, Northwestern Pacific R. R., San Francisco, Cal.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—F. C. Stewart, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Pittsburgh Commercial Club Rooms, Colonial Annex Hotel, Pittsburgh.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grand Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 a. m., Piedmont Hotel, Atlanta.

TRAFFIC CLUB OF CHICAGO.—C. B. Singer, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria Hotel, New York.

WESTERN CANADA RAILWAY CLUB.—I.. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Monday in month, except June, July and August, Hotel Sherman, Chicago.

WESTERN SOCIETY OF ENGINEERS.—Edgar S. Nethercut, Secretary, 1735 Monadnock Block, Chicago, Ill. Regular meeting, first Monday in month, excent January, July and August. Extra meetings generally on other Monday evening except in July and August.

Traffic News

The railroads centering in Philadelphia have not embargoed freight "between all stations less than 40 miles apart" as was erroneously reported in our last issue.

B. G. Hinckley, of Boston, has been named to assist L. A. Snead, of the United States Fuel Administration, in all matters relating to the supply of coal and coke for New England.

The Railroad Commission of Wisconsin recently authorized an advance of 15 cents a ton on hard coal and coke rates and varying advances for soft coal for different parts of the state. It held a hearing on November 21 to consider additional phases of the soft coal rate situation.

The Southern states can this year not only feed their own live stock but can furnish enormous quantities of feedstuffs to other sections. In addition to cottonseed meal, peanuts and peanut meal the states east of the Mississippi river have a surplus of velvet beans estimated at a million and a half tons. This is a protein feed of high value and particularly valuable as a dairy feed.

A committee of the New York Board of Trade & Transportation, 203 Broadway, New York City, is going to Washington to ask the Shipping Board to take action looking to the construction of boats for use on the enlarged Erie Canal, which will be in condition for use next spring. Members of the committee believe that the construction of boats can be started at once if the Washington authorities will give the necessary assistance.

The Boston & Albany has petitioned the Massachusetts Public Service Commission for authority to advance local passenger fares in that state from 2.50 cents a mile to 2.75 cents a mile except in the suburban zone, adjacent to Boston, where the rate is 2 cents a mile. The petition asks also for authority to increase the rate on mileage tickets from 2.25 cents to 2.50 cents; also an increase of 25 per cent on 12-ride and 25-ride tickets.

Among numerous freight embargoes announced this week was one by the Pennsylvania on shipments from any point on the lines east of Pittsburgh, as well as on all freight originating on connecting lines, destined for points on or by way of the Western Pennsylvania Division (the main line and branches from Altoona to Pittsburgh). The embargo will be lifted as soon as conditions warrant, but relief is not now in sight. Government freight, food, coal, etc., are excepted.

Coal to the amount of no less than 80,000 tons has been floated down the Ohio river on a single artificial flood, according to the last reports. This rise was started at Dam No. 7, Ohio river, and augmented by water from the Muskingum, Kanawha and Big Sandy rivers. The coal was taken to Cincinnati and other river cities. Every available towboat and barge was used, even small harbor boats. Fourteen tows of more than 200 craft were in the movement.

The Public Service Commission of Missouri on November 16 authorized a general advance in single trip passenger fares to 2½ cents a mile, from the present rate of 2 cents. The railroad had asked for authority to increase the rate to 3 cents. The rate now prescribed for round trip tickets is 2.4 cents a mile and for mileage books, good for 500 miles, 2.25 cents a mile. The commission allows these rates to go into effect on January 1 next. Commissioner E. J. Bean dissented and Chairman W. G. Busby did not sit in the case.

The New York, New Haven & Hartford has notified the New York Public Service Commission that it contemplates an increase in freight and passenger rates, and requests permission to file the new rates without the usual 30 days' notice. It is proposed to increase all local one way passenger fares from 2½ to 2¾ cents a mile and mileage books from 2¼ to 2½. The zone five-cent fares now prevailing on the Harlem River branch New York to New Rochelle are to be increased from five to six cents a zone. The freight increases (in New York State—no long distances) are from 2½ cents to 7 cents, according to the class.

The subcommittee on fertilizers of the committee on chemicals of the Council of National Defense, noting the embargoes of the Pennsylvania and other roads on the movement of fertilizers (included with other classes of freight quite as important as fertilizer) advises shippers and owners that the embargoes have been made absolutely necessary by the congested condition of the railroads; that all of them are likely to be removed at any time, as soon as the congestion is relieved, and urging that patience be exercised and that no attempt be made to interfere with the orderly working out of the embargoes; but if a given plant is placed in jeopardy of being shut down the facts should be reported to the committee.

The farm tractors which were bought by the Buffalo, Rochester & Pittsburgh last spring for the purpose of assisting the farmers along its line have been kept busy all summer and it is expected that they will continue hard at work until snow flies. These tractors have been furnished to the farmers at a rate of $1.50 an acre for plowing and 75 cents an acre for harrowing, including the services of an operator and all materials used in operation. They have been of material assistance in helping to produce the million-acre increase in wheat sowed for next season. Many farmers, having witnessed the company's tractors in operation, have been encouraged to make the purchase of tractors of their own. No less than 25 tractors have been bought by farmers along the Buffalo and Rochester divisions since last spring.

The State Public Utilities Commission of Illinois has issued Supplement No. 32 to Illinois Commissioners' Classification No. 10, canceling Supplement No. 31, effective December 15. Additions, cancellations and changes in the classification of articles shown in the new supplement were made by orders of the commission at hearings held at Chicago on May 9, 1917, and September 12, 1917. The commission will meet on the Wednesday after the second Tuesday in the months of January, May and September, for the purpose of considering petitions for further changes in classification or the classification of new articles. All petitions, applications and suggestions of any character to be acted upon at the regular classification meetings must be filed with the secretary of the commission 30 days prior to the first day of such a meeting, and the classification docket will be printed and mailed to all interested parties at least ten days prior to the first day of a meeting.

In order to increase the available supply of gondolas during the winter, the Public Service Commission of Indiana, on its own motion, has modified the existing demurrage rules in so far as they apply to cars containing coal, as follows: On cars placed on public delivery tracks for unloading, 48 hours' free time will be allowed, computing from the time of notice of placement by telephone or messenger. On cars containing coal to be delivered at any other than public delivery tracks, 48 hours' free time will be allowed, computing from the time of actual placement, or from the time of notice by telephone or messenger of constructive placement. In computing free time, Sundays and legal holidays will be excluded and when a legal holiday falls on Sunday the following Monday will be excluded. The average agreement has been abolished as far as cars containing coal are concerned. The order took effect on November 20 and will remain in force for 100 days.

The Adams, American, Southern and Wells Fargo express companies have asked the Interstate Commerce Commission to authorize a general increase of 10 per cent in their rates for transportation of merchandise. They aver that they are carrying on greatly increased business under the most trying conditions, and that their facilities are taxed far beyond their normal capacity. It is increasingly difficult to obtain necessary labor, and because of the increasing demand for express and baggage cars for movement of troops and military supplies it has been impossible to obtain adequate equipment.

Frequent and substantial advances in wages have been necessary to retain the employees, and it has been necessary to hire large numbers of new men to fill the places of those drafted into the army or taken to other employment by higher wages. Present rates do not produce sufficient revenue to meet the actual operating expenses and taxes. Operating expenses and taxes of the four principal companies for the six months ended June 30, 1917, were $99,653,848, and receipts were $99,613,999. The deficit for July was estimated at more than $250,000.

The Boston & Maine has adopted the shipping day plan. On the Boston & Maine the plan has been worked out carefully between the shippers and the management, so that co-operation to secure the maximum of efficiency and satisfaction has been assured in advance. Moreover, in the case of the Boston & Maine the shipping day plan will become effective at all the largest cities on its system.

The Pennsylvania Railroad has this week completed the revision of its method of handling less-than-carload freight, at all stations on its lines in Northern New Jersey. The shipping day plan, which has been already established in New York, Philadelphia, Buffalo and Baltimore, was on Monday put in effect at Trenton, Phillipsburg, Easton, Bristol, New Brunswick and a number of other stations on the New York and New Jersey divisions. Shipping day guides have been prepared for Trenton, Phillipsburg, Easton, Bristol and New Brunswick. For the other stations posters containing specific schedules for each individual station have been issued.

Commuters Show Patriotism

A year ago the State Public Utilities Commission of Illinois received 79 petitions bearing more than 3,000 signatures, requesting a 10-cent fare on the Illinois Central from West Pullman, Ill., to Randolph street, Chicago; also asking for complete electrification of the railroad's suburban lines and the use of modern steel coaches on suburban trains. When the case was called recently a communication from the representative of the petitioners was read as follows: "Because of the war and the expenses under which the railroads are operating, we ask that this case be indefinitely postponed." Accordingly, the case was struck from the docket of the commission.

Coal Production Increased

Not since early in July has the production of bituminous coal reached so high a point as during the week ended November 10, according to the weekly report of the United States Geological Survey. The total output, including coal made into coke, is estimated at 11,300,890 net tons, an average per working day of 1,883,482 tons. This was a gain of 4.7 per cent over the preceding week. Anthracite shipments were reported as 38,775 cars, a figure still far below the level maintained during October. During the week ended November 3, the ratio of tonnage produced to full time capacity was 75.4 per cent, as compared with 74.9 per cent during the preceding week. Losses due to car shortage amounted to 14.5 per cent of the present full time capacity, and labor shortage and mechanical breakdowns were responsible for losses of 5.7 and 3.6 per cent, respectively. A general improvement in car supply was reported in several districts.

County Officers to the Rescue

Governor Whitman, of New York, has notified the County Home Defense committees of the state to see that post-card notices are sent to shippers who are delinquent about obeying the national rules for conservation of transportation. If the matter cannot be corrected in this way it is urged that the delinquent shipper be visited personally by a member of the local committee and the importance of freeing cars as soon as possible made clear to him. It is necessary, says the governor, that the fullest possible use be made of all transportation agencies, including not only the steam railroads, but such other agencies as the motor truck, the electric lines and the waterways. He then quotes the Car Service Commission's suggestions, which include:

To the Receiver of Freight: Purchase in the nearest market. Be prepared to store the full contents of the largest freight car. Bunch your orders so as to make full car-load lots. If you can't order by carload, arrange with others to pool carload shipments.

To the Shipper: Have your shipments ready for immediate loading on receipt of cars. Arrange your shipment in car so as to permit prompt unloading at destination. See that packages are so loaded as to eliminate damage in transit.

Where you have been shipping less than carload freight daily and sending via a transfer point, hold your shipment two or three days to make up full carloads and bill to destination. Use drays or motor trucks instead of "trap-car service" and avoid the use of freight cars for moving freight from one point to another within the same city. Load in a single day, and time your loading to suit the schedule of departing trains. Furnish billing agent full

instructions that will permit the way bill being made up before loading is completed. Consign your shipment to final destination wherever possible, and discourage shipments that require changing destination in transit. Do not bill shipments by circuitous route in order to avoid the effect of embargoes.

Governors of other states have issued similar circulars.

Akron & Boston Express

Automobile trucks, described as "highway freight trains," are now running over country roads, from Akron, Ohio, to Boston, covering 1,510 miles in a week. This truck line is being operated by the Goodyear Tire & Rubber Company. It is called the "Akron & Boston Express." The present equipment consists of two White and two Packard trucks, of 1½, 3 and 5 ton capacity. It is planned to increase the equipment. A regular schedule is maintained, and the cars are said to be usually on time. The schedule calls for the round trip (1,510 miles) in less than one week. It is said that the express companies do not deliver as rapidly as that, and that the truck costs are competing with express rates. Tires are carried eastward and cotton fabrics and machinery on the return trip. Several trips have been made to Washington, D. C., with "war orders."

This service was started last April and the manager hopes to continue through the winter unless stopped by ice and snow. There is only 28 miles of unimproved road on the route. This bothers considerably in muddy weather. The poor condition of some of the old wooden and steel bridges is another handicap. Pneumatic tires are used exclusively.

Committee to Promote Use of Motor Trucks

The possibilities of co-operation with the railroads through greater use of motor trucks and horse-drawn vehicles, for relieving congestion in freight houses and releasing cars in the larger cities, was discussed at the first meeting, on November 17, at Washington, of the newly appointed Highways Transport Committee of the Council of National Defense. The great utility of motor trucks for carrying freight short distances, and keeping certain classes of freight out of the railroad terminals, will be a matter for recommendations by the committee. The committee will also act towards eliminating waiting time of trucks and drays at terminals. The committee will not operate any motor transportation, but, though co-operation with other transportation agencies, seek to develop the possibilities of the motor truck for carrying freight over distances where it can prove its economy and helpfulness in the present emergency. The committee appointed as secretary R. C. Hargreaves, who for some time past has been doing preliminary work on this subject under the Storage Committee of the Council of National Defense.

An example of the co-operation of manufacturers with the Washington committee is found in a large display advertisement printed in a New York paper and paid for by the Autocar Company, Ardmore, Pa., which reads, in part, as follows:

CLEAR THE WAY!

America's railroads are doing wonderful work, but they need help. Freight cars must be unloaded and terminals cleared. If it is your job, speed up loading and unloading of cars on private sidings. Do not be a slacker by trying to save expense of labor or space by using freight cars as storage houses. If your merchandise is congested at the terminals and you have not sufficient teams or motor trucks to move the goods at once, buy them or hire public ones. If you can't do this, do something else—ask your neighbor to help you. Why hesitate to hire your neighbors' trucking facilities? We must pull together. Shipping departments throughout the country demand the personal consideration of executives . . . Plan to reach nearby points by motor trucks, teams or waterways—save the railroad terminals. Twenty-five per cent of case, barrel and package merchandise can be delivered in this way. If the railroads decide to reserve certain terminals exclusively for Government materials, do not grumble, but go the extra distance and haul your goods to or from other terminals. It may be necessary to have a National terminal clearing day. If we have such a day, keep your teams and motor trucks going and keep your receiving departments open continuously 24 or 48 hours, if need be, and give the railroads a chance to catch up. Let everybody be prepared some way, somehow, to move their merchandise away from the terminals immediately.

Commission and Court News

STATE COMMISSIONS

Authority of a Commission to Raise Fares

The Public Service Commission of New York, second district, has authorized an advance of one cent—five cents to six cents—in the rate of fare on the Huntington Railroad Company, a street railroad running between Huntington Harbor and Amityville on Long Island. It was one of numerous six-cent fare cases, so called. No community through which the road runs objected to the applicant's case on the facts, nor did any of the inhabitants. The commission holds that subdivision 1 of section 49 of the public service commissions law (of 1907) has made it the duty of the commission, where it finds upon a sufficient showing that the maximum rates chargeable either under the railroad law or under the local franchise are insufficient to yield reasonable compensation, and are for that reason unjust and unreasonable, to authorize an increase. The opinion cites all of the decisions and all of the statutes of the State of New York having any bearing upon the question, and follows the Court of Appeals in the *Ulster & Delaware* case (218 N. Y., 643) and the Appellate Division for the Third Department in the *New York & North Shore* case (175 App. Div., 869).

COURT NEWS

The United States Bureau of Labor Statistics, Washington, has issued Bulletin No. 224, containing reports of important court decisions on labor questions issued since January 1, 1916. A number of the decisions of the Supreme Court of the United States, handed down since December, 1916, are included, but for the most part the decisions were made in the calendar year 1916. The most notable decisions are those sustaining the constitutionality of the Adamson eight-hour law, so-called; those deciding the constitutionality of workmen's compensation laws; and that sustaining the Oregon ten-hour day for factory employees without regard to sex or age. Besides these decisions of the Supreme Court there is the decision of the court of last resort of the state of Massachusetts in declaring unconstitutional an act of that state which undertook to limit the issue of injunctions in labor disputes, and numerous decisions and rulings by the state courts on questions of construction and constitutionality.

A large number of the decisions deal with the Federal liability law covering railroads in interstate commerce. Not only must the employing company be an interstate carrier, but the injured person must at the time of his injury have been employed in interstate commerce; for it is only when he is so employed that he can claim the benefits of the act, while, on the other hand, if so employed he is restricted to such recovery as that statute provides. With the wide extension of compensation legislation (now found in 37 states), there is constant conflict between the two classes of remedy, i. e., by compensation and by suits for damages; and it is frequently impossible to determine whether relief should be sought under the one law or under the other until the evidence has been submitted to a jury and a verdict rendered.

Evidence as to Notice of Flood

In an action for the destruction of a car of screens by fire from a car of unslaked lime fired in a railroad yard in Troy, N. Y., by an unprecedented flood, exceptions were taken to certain evidence introduced to show notice to the railroad of the coming of the flood. The Vermont Supreme Court held that parts of an article in a daily newspaper, published in a nearby city (Albany), to the effect that the river would rise nearly 16 feet (at Albany), and that it would continue to rise, and stating the weather observer's forecast, and the basis thereof, was inadmissible to show what information was accessible to the railroad as bearing on the question whether it ought to have known or to have inquired as to flood conditions in order to have protected the property, without a showing that the article had been seen and read by

some of the railroad's agents. Such an article did not in law have the effect of constructive notice, and at most could be only actual notice. Testimony of the weather forecaster concerning his daily weather maps mailed to public places, or his telephone messages to newspapers and to business houses, was held to afford no reasonable inference as to the railroad's negligence, and its admission was harmful error, especially in view of the railroad's custom of telephoning to the weather bureau for information as to flood probabilities. Judgment for the plaintiff was reversed and a new trial ordered.—Porter Screen Mfg. Company v. Central Vermont (Vt.), 102 Atl., 44. Decided October 2, 1917.

In another action for the destruction of a carload of paper at the same time from the same cause the New York Appellate Division arrived at the same conclusion.—International Paper Co. v. New York Central, 166 N. Y. Supp., 751. Decided July 19, 1917.

Freight Classification

The South Carolina Supreme Court holds that under the rule of the Interstate Commerce Commission, making the rate on scrap iron apply only to scraps and pieces of iron and steel which cannot be again used for the purposes for which they were originally used, a shipper of partially burned gasoline engines to the factory for the purpose of rebuilding is not entitled to the scrap iron rate, though the engines cannot be profitably rebuilt.—Gibbes Machinery Co. v. Southern (S. Car.), 93 S. E. Decided September 28, 1917.

Necessity for Physical Connection Between Crossing Tracks

Application was made by the Akron, Canton & Youngstown to the Ohio Public Utilities Commission for an order requiring that its tracks and those of the Cleveland, Akron & Cincinnati be connected at a certain point in Akron. The application was denied and the applicant appealed. The Ohio Supreme Court holds that the laws do not absolutely require such a physical connection. The test to be applied in every case is that of practicability of construction and reasonable necessity. Jurisdiction over such matters has been conferred upon the state Public Utilities Commission, and it is authorized to require such connection where, upon hearing, it finds it to be practicable and reasonably necessary. A charge of unjust discrimination is not made out by the mere fact of a previous connection with the tracks of one company and a refusal to another company. Reasonable public necessity for the proposed connection is the ultimate test in every case. In the present case the action of the commission in dismissing the application was sustained.—Akron, C. & Y. v. Public Utilities Commission (Ohio), 117 N. E., 314. Decided June 26, 1917.

In another case application by the Wheeling & Lake Erie for physical connection with the tracks of the Lake Erie & Pittsburgh near Kent, where the two tracks crossed at different grades, was refused by the Public Utilities Commission, whose order was affirmed by the Ohio Supreme Court on the ground that the applicant had not shown whether the connection sought was reasonably required.—W. & L. E. v. Public Utilities Commission (Ohio), 117 N. E., 317. Decided June 26, 1917.

Recent Claim Cases

A bill of lading for an interstate shipment stipulated that claims for damage should be made promptly in writing to the agent at the point of delivery within ten days. The South Carolina Supreme Court holds that the carrier's consideration, on the merits, of a claim not so filed does not operate as a waiver, and that question should not be submitted to the jury. There is no presumption of law that a shipper claiming damages for delay in transportation of goods gave the written notice of claim required by the bill of lading. Such a stipulation in a bill of lading was held to be reasonable, for the shipper might give notice of damage by his agents at the point of delivery, their knowledge of damage being imputable to the shipper, and no particular form of action being necessary.—Murray v. Atlantic Coast Line (S. Car.), 93 S. E., 387. Decided September 6, 1917.

The North Dakota Supreme Court holds that the filing of a claim eight months after goods have been shipped from Devils Lake, N. D., to New York, is not a compliance with the requirement that "claims must be made within four months after a reasonable time for delivery has elapsed." It also holds that such a provision is not for the purpose of escaping liability, but to facilitate prompt investigation, and is sufficiently complied with when, piror to the expiration of the four-months' period, oral complaint was made to the company's shipping agent of its failure to deliver, and the company acted on such complaint, and not only promised the shipper to send tracers and to make an investigation, but complied with its promise, and a month after such complaint the shipper was advised by the agent to wait a little longer, as he understood that the goods had been sold.—Shark v. Great Northern (N. D.), 164 N. W., 39. Decided July 28, 1917.

The North Carolina Supreme Court holds that a carrier's stipulation in the bill of lading of an interstate shipment of live stock requiring written notice of claim for damage to the shipment before the animals are removed from the place of delivery and before they are mingled with other animals is reasonable and valid; therefore a shipper's verbal notice to an agent of the delivering carrier was insufficient. The court held the decision in St. Louis, I. M. & S. v. Starbird, 243 U. S., 592, to be binding on it. Bryan v. Louisville & Nashville (N. Car.), 93 S. E., 750. Decided October 3, 1917.

The same court also holds that a notation by a railroad agent on a freight bill as to injuries to a shipment was not a compliance with a bill of lading stipulation for written notice of loss required to be filed within a given time; and a shipper could not recover for injury to a furniture shipment where he failed to file the required written notice of loss within the specified time, although the agent had actual notice of the loss.—Taft v. A. C. L. (N. Car.), 93 S. E., 752. Decided October 3, 1917.

The South Carolina Supreme Court holds that the provision of a bill of lading requiring, as a condition to liability of the carrier, the filing of claims for loss, damage, or delay, has no application in an action for conversion by the carrier, refusing tender of all charges and selling the goods.—Dowling v. S. A. L. (S. Car.), 93 S. E., 863. Decided October 16, 1917.

UNITED STATES SUPREME COURT

The Supreme Court of the United States, in an opinion by Justice Brandeis on November 12, affirmed the action of the Federal Court for the Western district of Kentucky in refusing an injunction asked for by the St. Louis Southwestern and other carriers hauling pine from the southwest to Paducah and Cairo, to prevent the Interstate Commerce Commission enforcing its orders intended to put lumber rates to Paducah and Cairo on a parity. The carriers had asked for the injunction on the ground that the rates were confiscatory and beyond the power of the commission to make.

Reduction of Rates

The Supreme Court of the United States has upheld the order of the Interstate Commerce Commission (Paducah Board of Trade v. Illinois Central, 37 I. C. C., 719) directing 53 railroads to establish certain through routes and joint rates on logs and lumber from the "blanket territory" to Paducah, Kentucky, and reducing existing rates. (The blanket territory is west of the Mississippi and south of the Arkansas River, 300 miles wide by 400 miles long.) In the report on which it based its order the commission found: (1) That the 16-cent rate to Cairo was not unduly low; (2) that the 22-cent rate to Paducah was unreasonable to the extent that it exceeded the existing rate to Cairo; (3) that the existing disparity of rates gave to Cairo an undue preference and advantage over Paducah; (4) that the distances to Paducah via Cairo were so much greater than the distances via Memphis that the natural route is via Memphis rather than via Cairo; (5) that through routes and joint rates not higher than the Cairo rate should be established from the "blanket territory" to Paducah via either Memphis or Cairo.

The principal railroads serving the blanket territory are the St. Louis Southwestern, the St. Louis, I. M. & S. and the Rock Island. The 22-cent rate from the blanket territory to Paducah via Cairo was made by adding to the joint rate or local of 16 cents to Cairo, the local rate of 6 cents from Cairo to Paducah, Cairo being a rate-breaking point.—St. Louis Southwestern v. United States. Decided November 12, 1917.

Equipment and Supplies

LOCOMOTIVES

THE ALABAMA & VICKSBURG has ordered 2 Mikado locomotives from the Baldwin Locomotive Works.

THE PENNSYLVANIA EQUIPMENT COMPANY, 1420 Chestnut street, Philadelphia, is in the market for one second-hand, 65-ton, six-wheel switching locomotive.

FREIGHT CARS

THE RICHMOND, FREDERICKSBURG & POTOMAC is inquiring for 100 hopper cars.

MORRIS & CO. has ordered 400 refrigerator cars from the Haskell & Barker Car Company.

THE LEHIGH PORTLAND CEMENT COMPANY, Allentown, Pa., is inquiring for 50 50-ton hopper cars.

THE AMERICAN STEEL EXPORT COMPANY, New York, is inquiring for 120 20-ton flat cars and 200 tank cars.

THE ILLINOIS CENTRAL has recalled its bids on 1,000 70-ton hopper cars and has issued a new inquiry for 1,000 50-ton capacity hopper cars.

THE ITALIAN GOVERNMENT is receiving bids through the authorities at Washington for 6,000 to 9,000 four-wheel cars similar to those illustrated in the Patriotic War Number of the *Railway Age Gazette*, June 22, 1917, page 1462.

PASSENGER CARS

THE PENNSYLVANIA EQUIPMENT COMPANY, 1420 Chestnut street, Philadelphia, is in the market for 9 second-hand passenger coaches.

IRON AND STEEL

THE NORTHERN CENTRAL has ordered 144 tons of steel for a traveling gantry crane at Baltimore, Md.

THE PENNSYLVANIA RAILROAD has placed an order for 11,800 tons of foundry iron with a central Pennsylvania furnace at the prices fixed by the government. This tonnage represents the railroad's requirements over the first half of next year.

A RAILWAYMEN'S LIBRARY IN ENGLAND.—The importance of educational and recreation facilities for their employees has long been recognized by British railway companies, who have given practical encouragement to the movement in every possible way. Proof of this may be seen in the well-equipped institutions provided by the different companies. Prominent among these is the Great Western Railway Institution at Swindon, which now numbers over 11,000 subscribing members, and has been practically self-supporting since its foundation upwards of 70 years ago. Its success and influence, however, could not have been so far-reaching had it not been for the beneficent goodwill and direct encouragement of the directors and chief officers, from Sir Daniel Gooch, the founder of the institution, to the present day. One of its chief features is the library, which contains about 40,000 volumes, embracing standard works in all classes of literature, including natural and applied science, the fine and useful arts, travel, history and biography, philosophy, religion and sociology, music, fiction and books for the young. Being a railwaymen's library, it specializes in engineering and railway literature. For a graduated subscription, beginning as low as 6d. ($.12) a quarter, a member has the library and reading rooms at his constant service. Numbers of apprentices, journeymen and their families, draughtsmen and clerks, school teachers and other students are thus afforded unique opportunities which are not neglected. The officers and their staffs also utilize the resources of the library both in their official and private capacities. The library has thus made for itself an important place among the higher educational institutions of the town.—*Railway Gazette, London.*

Supply Trade News

Howard D. Taylor, of the Remington Arms Company, Eddystone, Pa., has been elected vice-president of McCord & Co., Chicago.

William S. Boyd, formerly assistant in the purchasing department of the Crucible Steel Company of America at Pittsburgh, is now purchasing agent of the Page Steel & Wire Company, Monessen, Pa.

R. L. Browne, who for the past 15 years has been identified with the electrical and mechanical engineering profession, has recently become associated with the sales department of the Goldschmidt Thermit Company, New York, in the capacity of commercial engineer, after having spent several months in the foundry of that company acquiring a practical knowledge of the Thermit process of welding.

W. J. Schlacks, general manager of McCord & Co., Chicago, was recently elected director and vice-president of that company, with headquarters at Chicago. Mr. Schlacks was born in Chicago on March 28, 1874. His first railroad experience was as a machinist apprentice on the Illinois Central. Later he went with the Denver & Rio Grande, after which he entered Leland Stanford Jr., University. Following his graduation from college he was appointed assistant mechanical engineer on the Denver & Rio Grande. He was later appointed mechanical engineer on the Colorado & Midland, following which he was general foreman and superintendent of machinery on the same road. In September, 1906, Mr. Schlacks was appointed western sales agent of McCord & Co. and in October, 1914, was promoted to general manager with headquarters at Chicago. As vice-president he will continue to have headquarters at Chicago.

W. J. Schlacks

Charles H. Stoer and M. A. Sherritt, of the Sherritt & Stoer Company, Inc., machinery dealers of Philadelphia, who recently acquired the stock of the Betts Machine Company of Wilmington, Del., have disposed of the real estate buildings and equipment to E. I. DuPont de Nemours & Co. The business of the Betts Machine Company will be continued with improved facilities since the new owners retain the good will, patents, patterns, drawings, jigs, fixtures, etc. The new officers are: M. A. Sherritt, president; Geo. W. Moreton, vice-president, and C. H. Stoer, secretary-treasurer, and the general offices have been moved to the Finance building, Philadelphia.

The Glazier Manufacturing Company, Rochester, N. Y., one of the oldest manufacturers of headlights, cases and reflectors, has reorganized, and has elected Frank Ocumpaugh president and general manager and Fred Kimmel vice-president. Mr. Kimmel is also president of the Rochester Motors Company. Mr. Ocumpaugh was born in Rochester, New York, and after finishing a common and high school education entered business in 1890 as purchasing agent of the Vacuum Oil Company, Rochester, N. Y. He held that position for 27 consecutive years, during which time the size and business of the Vacuum Oil Company expanded tremendously. Two years ago he went into the real estate business, which he has now given up to devote his time to the manufacture of Glazier products. Oscar F. Ostby, who is manager of sales for the company, maintains headquarters at the Grand Central

Terminal, New York. A sketch of Mr. Ostby's life appeared in these columns October 26.

At a meeting of the board of directors of the Rail Joint Company, New York, on Wednesday, V. C. Armstrong, manager of sales, was elected president, succeeding E. Y. Weber, resigned, and Mr. Armstrong and D. P. Wolhaupter, of Washington, D. C., are elected members of the board of directors, succeeding Percy Holbrook and Frank P. Vanderlip, resigned. The other officers of the company remain as at present: G. G. Frelinghuysen, chairman of the board and of the executive committee; W. Paton Thomson, vice-president; Benjamin Wolhaupter, vice-president and secretary, and F. C. Runyon, treasurer. Mr. Weber, the former president, remains a member of the board of directors and of the executive committee. The other members of the executive committee are G. G. Frelinghuysen, V. C. Armstrong, Charles P. Wheeler and W. Paton Thomson.

TRADE PUBLICATIONS

ADJUSTABLE HUB PLATES.—A book has been published by the Smith Locomotive Adjustable Hub Plate Company, Chicago, which describes the application and maintenance of the adjustable hub plate, the use of which is licensed by this company.

AMERICA'S AIRPLANES.—An interesting booklet bearing this title has been published by the Gisholt Machine Company, Madison, Wis. It contains numerous illustrations showing the development of airplanes and dirigibles from the earliest types to those which are now being built for use in the war zone. There is also a section devoted to airplane engines and the manufacture of engine parts.

HEAT INSULATION.—The Magnesia Association of America, 702 Bulletin building, Philadelphia, Pa., has issued a leaflet of 40 pages called "85 per cent Magnesia" and Heat Insulation. The purpose of the book is to present the latest and best information on heat insulation. Particular stress is laid on "85 per cent Magnesia" and its development is described. The various types of insulation made with this product and the uses to which this material may be put are mentioned. Illustrations of many interesting installations are included.

AUSTIN STANDARD BUILDINGS.—The Austin Company, Cleveland, Ohio, has issued a 36-page book explaining the object, methods, results and advantages of the Austin system of standard buildings. The plan covers nine types of structures, in steel, timber and concrete, suitable for housing widely varying industries. The material for building them is kept in stock at various places in the country, so that with the help of an efficient organization, it is possible to complete large buildings at rates hitherto considered impossible. The book is illustrated by drawings of the various types, and halftones of completed structures.

THE DESIGN OF FORGING MACHINE DIES.—A paper on the "Laws Governing Forging Machine Die Design," by E. R. Frost, general manager of the National Machinery Company, which was read before the American Drop Forge Association, has been reprinted by the National Machinery Company, Tiffin, Ohio, as Forging Machine Talk No. 27. The principles governing the design of dies for forging machines have been reduced to simple rules, and numerous illustrations show the application of these rules in making various classes of forgings. The paper contains information that will be of value in shops where forging machines are used.

GEARED LOCOMOTIVES.—The Lima Locomotive Works, Lima, Ohio, has issued bulletin No. 2 describing Shay geared locomotives for industrial railways. These locomotives are designed particularly to operate on lines having sharp curves and turnouts on which rod connected engines can not operate. They are particularly suited for use in industrial plants as they will accelerate quickly and with them it is easier to spot loads more accurately than with rod connected engines. The bulletin gives an account of tests made with an 0-6-0 type engine and a Shay locomotive of equal tractive effort, to obtain comparative rates of acceleration when working under the same conditions and to determine the time required by the two engines to spot a given load at definite points. A brief description of the Shay locomotive truck is also included in the pamphlet.

Railway Construction

ATLANTIC COAST LINE.—This company is building, with company forces, a brick passenger station one story high, 32 ft. wide and 72 ft. long, at St. Cloud, Fla.

BUFFALO & NORTHWESTERN.—Construction has been started on this road extending from Buffalo, Okla., to Waynoka, 52 miles, by Walker & Taylor, contractors, of Ft. Worth, Tex. Frank Adams, Oklahoma City, Okla., has a sub-contract. E. C. Johnson, Buffalo, is president, and L. E. Walker, of Waynoka, is general manager of the road.

CANADIAN NORTHERN PACIFIC.—This company has commenced the construction of train shed and a concourse for its new passenger terminal at Vancouver, B. C. The train shed will be 21 ft. in height, 90 ft. wide and 900 ft. long, of reinforced concrete construction on wooden piles, with platforms of wood. The concourse will be 21 ft. in height, 40 ft. wide and 310 ft. long, of reinforced concrete construction on wooden piles, with a floor of concrete. The work will cost about $170,000 and is being done by the Northern Construction Company, Limited, and Carter, Halls & Aldinger, Limited, joint contractors, both of Vancouver, B. C. The plans were prepared by Pratt & Ross, architects, Vancouver, B. C.

GULF, COLORADO & SANTA FE.—This company is contemplating the construction of a freight station and a machine shop at Temple, Tex. The depot will be a two-story brick building, 32 ft. by 52 ft., with concrete foundations and a basement for a steam-heating plant. The structure will be covered with a tar and gravel roof. Adjoining the depot will be a freight warehouse, 32 ft. by 160 ft., on concrete foundations. It will be one story in height, with a tar and gravel roof, and will have metal rolling doors. Adjacent to the warehouse will be a covered platform, 32 ft. by 54 ft. The buildings will be electric lighted, steam heated and equipped with the necessary plumbing. The estimated cost of the freight house facilities is $30,000. The proposed machine shop at Temple will be 60 ft. by 100 ft., with concrete foundations, brick walls, machinery foundations, electric light, steam heat and tar and gravel roof. The structure will cost $15,000, exclusive of machinery.

NEW YORK CENTRAL.—A contract has been given to the Eastern Concrete Steel Company, Buffalo, N. Y., to build a concrete, brick and steel power station, 34 ft. high, 60 ft. wide and 67 ft. long, for the New York Central at Curtis street, Buffalo.

SAVANNAH & ATLANTA.—A contract has been given by this company to H. O. Young, Savannah, Ga., to build a brick warehouse 40 ft. by 250 ft. at Savannah, to cost $11,000.

INDIA'S LOST RAILWAY EQUIPMENT.—Between April and December of the year 1916 the sum of £13,333 ($64,800) had to be written off the books of the railways of India for material, rolling-stock, etc., supplied to Mesopotamia, which could not be traced.

INCREASED RATES IN AUSTRALIA.—On the recommendation of P. R. Johnson, an English railway expert, who has been investigating the cause of the unfavorable financial condition of the state railways, increased freight rates and passenger fares have been adopted.

AMERICAN-MADE BRIDGE TO SPAN COLOMBIAN RIVER.—A representative of an American company has recently arrived in Colombia to inspect the site for a bridge over the river Coello at Chicoral, Department of Tolima, which is to be erected in connection with the Tolima Railroad now under construction. The bridge will probably be delivered at Cartagena in November or December next. The contract price was $15,900 on board at New York. In connection with this bridge it is interesting to note that the Minister for Public Works has recommended that, when possible, a long iron span be constructed over the Magdalena River to connect the Girardot and Tolima Railroads.—*Commerce Report.*

Railway Financial News

BALTIMORE & OHIO.—F. H. Goff, president of the Cleveland Trust Company, has been elected a director to succeed Oscar G. Murray, deceased.

CANADIAN NORTHERN.—Graham A. Bell, of Toronto, has been elected a director to succeed H. W. Richardson.

CHICAGO & EASTERN ILLINOIS.—Under an order of the court in the foreclosure suit brought by the Central Trust Company in behalf of owners of Chicago & Eastern Illinois 5 per cent purchase money first lien coal bonds, the trust company is applying $1,022,500 received from Receiver Keller in reduction of the amount found due the bondholders by the court. Payment of $200 per $1,000 bond is to be made. These bonds are secured by a first lien upon 41,000 acres of coal lands in Indiana and Illinois, which are to be sold under foreclosure December 17 and 18. The committee, which represents $4,935,000 of the $5,094,000 bonds outstanding, announces that it will take such action at the sales as in its discretion will best meet the interests of the depositing bondholders.

GEORGIA COAST & PIEDMONT.—Judge Emory Speer in the Federal Court of Macon, Ga., has granted the application of the receivers to issue $150,000 receivers' certificates.

HOCKING VALLEY.—A dividend of 3½ per cent has been declared, payable December 31 to stock of record December 14. This compares with a dividend of 2 per cent in June, making the total dividends paid this year total 5½ per cent as against 4 per cent in 1916.

KANSAS CITY, MEXICO & ORIENT.—W. F. Hall, of Kansas City, has been elected chairman of the board of directors to succeed Edward Dickinson, deceased.

PENNSYLVANIA RAILROAD.—Samuel Rea, president of the Pennsylvania Railroad Company, answering the published rumors of an amalgamation of the Eastern and Western Lines of the Pennsylvania System, Wednesday, said:

"The Board of Directors is considering the acquisition by the Pennsylvania Railroad Company of the lines comprised in the Northwest System, chiefly the Pittsburgh, Fort Wayne & Chicago Railway, the Cleveland & Pittsburgh Railroad, the Erie & Pittsburgh Railroad, and other roads now entirely owned and operated by the Pennsylvania Company. All the capital stock of the Pennsylvania Company is owned by the Pennsylvania Railroad Company. The acquisition of the Pennsylvania Company, which the directors are considering, is in line with our policy of eliminating unnecessary corporation and duplicate accounting and financing. Whether it is finally consummated or not, it will not disturb the experienced and efficient organization of the Pennsylvania System now at Pittsburgh, which has charge of the administration and operation of the Western Lines. Under the present pressure of traffic, and in order to assist most effectively in the prosecution of the war, we need more experienced officers instead of decreasing the number. The rumored creation of a Chairman of the Board, and other radical changes in our organization, have no foundation in fact."

PITTSBURGH & WEST VIRGINIA.—The following directors have been elected: Asa S. Wing and William R. Nicholson, of Philadelphia; Ernest Stauffen, Jr., of New York, and H. E. Farrell, of Pittsburgh.

WISCONSIN & MICHIGAN.—This road, operating between Peshtigo Harbor, Wis., and Mountain, Mich., a distance of 124 miles has been sold to John Marsch of Chicago, who owns a majority of the first mortgage bonds amounting to over $1,300,000. The price paid for the road was not made public.

WOMEN POLICE ON THE GREAT EASTERN.—Nine young women were recently sworn in as special constables on the Great Eastern of England. They were dressed in blue coats and skirts, with brass buttons, and wore caps with white covers and the company's badge.—*Railway Gazette*, London.

Railway Officers

Executive, Financial, Legal and Accounting

H. L. Borden, secretary and assistant treasurer of the Atlantic Coast Line at New York, has been elected vice-president, with headquarters at New York.

G. E. Matt, assistant to the auditor and treasurer of the Miami Mineral Belt, has been appointed auditor and assistant treasurer, with headquarters at Miami, Okla.

F. R. Perkins, general freight and passenger agent of the Salina Northern at Salina, Kan., has been appointed also auditor, vice H. G. Strode resigned to accept service with another company.

George J. Adams, chief clerk to vice-president of the Pennsylvania Railroad, has been appointed assistant to the vice-president in charge of accounting, with office at Philadelphia, Pa.

Robert S. Parsons, assistant to president and chief engineer of the Erie at New York, has been appointed assistant to the president and general manager of the Erie and the New York, Susquehanna & Western, also of affiliated lines, and will remain in charge of maintenance and construction, with headquarters at New York. He was born at Hohokus, N. J., and was educated at Rutgers College. In 1895 he began railway work as a rodman on the Erie; the following year he was made assistant engineer, and, in 1899, became division engineer of the New York, Susquehanna & Western. In 1903, he was appointed engineer of maintenance of way of the Erie, and three years later became assistant general superintendent of the same road. He was appointed superintendent of the Susquehanna division in 1907, and three years later was transferred in the same capacity to the New York division. On January 1, 1913, he was appointed assistant general manager of the lines east of Buffalo, N. Y., and Salamanca, with headquarters at New York. One year later he was appointed general manager of the Ohio Grand division, now known as the Erie Lines West, with office at Cleveland, Ohio, and in January, 1916, he was appointed chief engineer; the following September he was made assistant to the president and chief engineer, and now becomes assistant to president and general manager of the Erie and the New York, Susquehanna & Western and affiliated lines, as above noted.

R. S. Parsons

John F. Morris has been appointed assistant general auditor of the Denver & Rio Grande, with headquarters at Denver, Colo., effective November 1. This is a newly created position.

F. G. Sprain has been appointed auditor of frieght overcharge claims of the Great Northern, with office at St. Paul, Minn., vice J. A. Nelson, who has been appointed grain claim agent, with the same headquarters.

Operating

J. A. Cochrane, superintendent of safety of the Great Northern, was appointed assistant to the general manager, with headquarters at St. Paul, Minn., effective November 15.

H. E. Birkinsha, superintendent of the Salina Northern at Salina, Kan., has been appointed general superintendent, and R. E. Greene has been appointed car accountant, both with offices at Salina.

W. J. Sullivan has been appointed assistant superintendent of the St. Louis-San Francisco at Sapulpa, Okla., succeeding F. R. Kennedy, assigned to other duties, effective November 15.

W. W. Scannel, assistant freight auditor of the Chicago Milwaukee & St. Paul, at Chicago, has been appointed car accountant, with the same headquarters, succeeding J. L. Brown, promoted.

J. C. Grisinger, trainmaster on the Chicago, Burlington & Quincy, at Lincoln, Neb., has been appointed inspector of transportation with headquarters at Chicago, succeeding W. E. Fuller, transferred.

M. J. Griffin, formerly with the Chicago, Rock Island & Pacific, has been appointed superintendent of the Chicago, Terre Haute & Southeastern, with headquarters at West Clinton, Ind., succeeding F. A. Leith, resigned; effective November 1.

Samuel J. Hungerford, whose appointment as general manager, Eastern lines, of the Canadian Northern, with headquarters at Toronto, Ont., has already been announced in these columns, was born on July 16, 1872, near Bedford, Que. He was educated in the common and high schools and began railway work in May, 1886, as a machinist apprentice on the South Eastern and later served with its successor, the Canadian Pacific, at Farnham, Que. He was then machinist at various places in Quebec, Ontario and Vermont. From August, 1897, to February, 1903, he was consecutively assistant foreman at Farnham, Que., locomotive foreman at Megantic, general foreman at McAdam Junction, N. B., and locomotive foreman at Cranbrook, B. C., on the Canadian Pacific. In February, 1903, he was appointed master mechanic on the Western division at Calgary, Alta. The following January he became superintendent of locomotive shops at Winnipeg, Man., and four years later was appointed superintendent of shops at the same place. In March, 1910, he became superintendent of rolling stock of the Canadian Northern and the Duluth, Winnipeg & Pacific at Winnipeg, Man., and in May, 1915, was transferred in the same capacity to the Canadian Northern at Toronto, Ont., which position he held at the time of his recent appointment as general manager, Eastern lines, of the same road, as above noted.

S. J. Hungerford

H. J. Main, chief despatcher on the Smiths Falls division of the Canadian Pacific, has been appointed assistant superintendent on the same division, and H. C. Taylor, has been appointed chief despatcher on the Smiths Falls division, vice Mr. Main.

J. A. Frates, Jr., vice-president and general manager of the Miami Mineral Belt, has been appointed vice-president in charge of operation; H. B. Granlee, traffic manager and treasurer, has been appointed general manager and treasurer; both with headquarters at Miami, Okla.

L. T. Johnston, trainmaster of the River division of the Chicago, Milwaukee & St. Paul, with headquarters at Minneapolis, Minn., has been promoted to superintendent of the Prairie du Chien and Mineral Point divisions, succeeding A. C. Peterson, who has joined the Russian railway corps as a major, effective November 1.

T. F. Durkin, assistant superintendent of the Denver & Rio Grande at Helper, Utah, has been appointed assistant superintendent of the Salt Lake division, with headquarters at Salt Lake City, vice C. F. Seymour, assigned to other duties. E. F. Marshall has been appointed trainmaster of the Salt Lake division, with headquarters at Helper, Utah, vice G. W. Penwarden, assigned to other duties, and J. R. Loftis has been appointed trainmaster of the Salt Lake division, with headquarters at Thistle.

H. M. Eicholtz, whose appointment as assistant general superintendent of the Chicago & North Western, with headquarters at Chicago, was mentioned in these columns on October 26, was born at Mathusa, Ill., on February 18, 1873. His service with the North Western has been continuous since August, 1890, during which period he has served as station baggage man, telegraph operator, station agent, train despatcher, trainmaster, assistant superintendent and division superintendent, which position he held at the time of his appointment, as noted above.

George Collins, whose appointment as superintendent of the Quinto district of the Canadian Northern, with headquarters at Trenton, Ont., has already been announced in these columns, was born on July 20, 1860, at Wellers Bay, near Trenton, and was educated in the Trenton public and high schools. He began railway work in June, 1882, with the Central Ontario and subsequently served on that road consecutively as agent and train despatcher at Trenton. From 1892 to 1894 he was secretary-treasurer, then was general superintendent and secretary until October, 1902, when he became receiver and manager. From December, 1906, to August, 1914, he was general manager and secretary and from May, 1913, to August, 1914, a director of the same road. In September, 1914, he was appointed superintendent of the Ottawa division of its successor, the Canadian Northern; one year later he was made superintendent of branch lines and from September, 1916, until his recent appointment he was special representative.

Traffic

C. S. Connolly, general freight agent of the Miami Mineral Belt, has been appointed traffic manager at Miami, Okla.

M. A. Hood has been appointed general agent of the Las Vegas & Tonopah and the Bullfrog Goldfield, with office at Tonopah, Nev., succeeding R. J. Highland.

J. L. Ferguson, whose appointment as general passenger and ticket agent of the Chicago & North Western, was announced in these columns on November 16, was born in Henry county, Ky., on August 23, 1853, and was educated in the common schools. He began railway work in 1868 as a telegraph operator on the St. Louis, Kansas City & Northern, where he remained until 1875 when he entered the service of the Chicago & North Western, serving successively as ticket agent at Milwaukee, Wis., city passenger agent at Milwaukee, city passenger agent at Chicago, assistant general passenger agent and assistant general passenger and ticket agent. He held the position of assistant general passenger and ticket agent at the time of his recent promotion to general passenger and ticket agent with headquarters at Chicago, succeeding C. A. Cairns, promoted.

J. L. Ferguson

J. J. Clark, chief of the traffic bureau of the Chicago & Eastern Illinois, has been appointed assistant general freight agent; E. J. Schmidt has been appointed to succeed Mr. Clark as chief of the traffic bureau, both with headquarters at Chicago.

W. J. Keane, general traveling agent of the Blue Line (New York Central) with headquarters at St. Louis, Mo., has been appointed commercial agent of the New York Central Fast Freight Lines, with headquarters at Dallas, Tex., succeeding C. W. Smith, resigned, effective November 6.

J. B. Large, assistant general freight agent of the Pennsylvania Railroad at Philadelphia, Pa., has been appointed general freight agent in charge of through traffic, to succeed Walter Thayer. Walter S. Franklin, Jr., division freight agent at Baltimore, Md.,

has been appointed assistant general freight agent, with offices at Philadelphia, Pa., and S. T. Stackpole, acting division freight agent at Baltimore, has been appointed division freight agent at the same place. A portrait of Mr. Large and a sketch of his railway career were published in the *Railway Age Gazette* of October 19, 1917, page 727.

C. A. Cairns, whose appointment as passenger traffic manager of the Chicago & North Western was announced in these columns on November 16, was born at Cleveland, Ohio. He entered railway service in 1878 as messenger in the president and treasurer's office of the Cleveland, Columbus, Cincinnati & Indianapolis, from which date he served to March 1, 1879, as stock clerk in the passenger department. He later held various positions in the general passenger department of the combined Cleveland, Columbus, Cincinnati & Indianapolis, Indianapolis & St. Louis, and Dayton & Union, until April 15, 1889, when he resigned as chief clerk to become chief clerk in the passenger department of the Chicago, St. Paul & Kansas City. From January 1, 1890 to August 15, 1892, he was assistant general passenger and ticket agent on the same road, following which he held various positions in the general passenger department of the Chicago & North Western until January 1, 1895, when he was appointed assistant general passenger and ticket agent. From March 1, 1903, to November 15, 1917, he was general passenger and ticket agent, the position he held when promoted to passenger traffic manager, with headquarters at Chicago, as noted previously.

C. A. Cairns

Walter Thayer, general freight agent of the Pennsylvania Railroad, at Philadelphia, Pa., has been appointed general coal freight agent, succeeding to the duties of the late Robert H. Large. Mr. Thayer was born on April 27, 1874, and received his early education at the Haverford, Pa., schools, and was graduated from the University of Pennsylvania in the class of 1897. He entered the service of the Pennsylvania Railroad in the fall of 1895, as a receiving clerk in the Thirtieth and market streets freight station, Philadelphia. In 1896 he was transferred to Dock street station as a clerk in the claim department, and in 1897 he was again transferred to the rate room at the Broad street station. He was then promoted to freight solicitor of the United Railroads of New Jersey. In the fall of 1901 he was made special agent in the freight department of the Buffalo & Allegheny Valley division, with headquarters at Pittsburgh. In 1903 he was appointed eastern manager and general freight agent of the Erie & Western Transportation Company—Anchor Line—with headquarters at Philadelphia. On June 1, 1910, he was appointed assistant general freight agent of the Pennsylvania Railroad, and in May, 1912, was promoted to general freight agent, which position he held until his recent appointment as general coal freight agent of the same road, as above noted.

W. Thayer

Engineering and Rolling Stock

J. C. Pickens, assistant engineer of the Atlantic Coast Line, at Rocky Mount, N. C., has been appointed division engineer, construction department, with headquarters at Richmond, Va., succeeding M. S. McDanel, resigned.

C. H. Crawford, assistant engineer in the mechanical department, of the Nashville, Chattanooga & St. Louis, has been loaned to the War Industries Board of the Council of National Defense for service on the storage committee.

Galen B. Owen, superintendent of maintenance of the Erie at New York, has been appointed chief engineer of the Erie and the New York, Susquehanna & Western, and Harold Knight, assistant superintendent of maintenance at New York, has been appointed superintendent of maintenance of way; both with headquarters at New York. A sketch of Mr. Knight's railway career was published in the *Railway Age Gazette* of April 27, 1917, page 915, and a portrait of Mr. Owen and a sketch of his railway career were published on May 18, 1917, page 1073.

H. H. Temple, whose appointment as chief engineer of the Pittsburgh & West Virginia and the West Side Belt, with headquarters at Pittsburgh, Pa., was announced in the *Railway Age Gazette* of November 16, 1917, entered the service of the Baltimore & Ohio Southwestern in February, 1899, as an assistant engineer. In December of the same year he was appointed resident engineer in charge of construction work on the Springfield division. From March, 1901, to March, 1902, he was signal engineer on the same road, and from the latter date to April 1, 1903, he was division engineer. On April 1, 1903, he was transferred to the Baltimore & Ohio, as division engineer of the Connellsville division, and in December, 1903, he was moved to the Pittsburgh division. In June, 1905, he was promoted to engineer maintenance of way of the Pittsburgh system, which position he held until January 1, 1907, when he became superintendent of the New Castle division. On March 1, 1914, he was appointed superintendent maintenance of way in charge of construction and maintenance of the San Antonio & Aransas Pass. His appointment as chief engineer of the Pittsburgh & West Virginia and the West Side Belt was effective October 22.

Railway Officers in Military Service

Fred. Jasperson, engineer of docks and construction of the Philadelphia & Reading at Port Richmond, Philadelphia, Pa., has been commissioned a lieutenant-colonel, and has left for Russia with the special force organized for the government by the Baldwin Locomotive Works, for repair and reconstruction work on the railways in Russia.

OBITUARY

G. E. King, assistant general passenger and ticket agent previous to 1905 of the Michigan Central, at Detroit, Mich., died on November 19.

G. H. Worcester, formerly superintendent of the Lake Shore & Michigan Southern and later superintendent of the Harlem division of the New York Central & Hudson River, previous to 1891, died at his home in New York on November 17.

George M. Miller, formerly from 1881 to 1887 president of the Denver, Utah & Pacific and later president of the Housatonic Railroad, vice-president of the New York, Providence & Boston and a director of the New York, New Haven & Hartford, died on November 14, at his home in New York, at the age of 87. He served as president of the Newport & Wickford Railroad and Steamship Company in 1871, and in 1879 was president of the Providence & Stonington Steamship Company, which is controlled by the New Haven.

Edward T. Postlethwaite, assistant to the president of the Pennsylvania Railroad, at Philadelphia, Pa., died on November 14, in a hospital in that city. He was born in July, 1850, and entered the service of the canal department of the Pennsylvania Railroad in April, 1863, as timekeeper, and in 1872 became shop clerk in the Northern Central shops at York. He later served in the office of the superintendent of motive power of the Pennsylvania Railroad at Altoona and then was successively chief clerk in the office of general manager, second, and first vice-president until February 10, 1897, when he was appointed assistant to the president.